

## KELVINATOR OF CANADA REPORTS GOOD PROGRESS

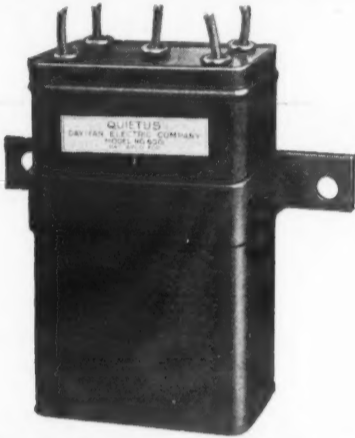
Kelvinator of Canada, Ltd., London, Ontario, report fine progress during the past year. This concern now has dealers established and operating in practically every city in the Dominion. Kelvinator sales and service agents located throughout the British Isles operate under Kelvinator, Ltd., London, England, a subsidiary of the Canadian company.

The location of the Kelvinator factory in Canada has been a factor in the building up of an electric refrigeration consciousness in that territory. The Canadian concern is under the management of F. S. McNeal; Kelvinator Ltd., London, England, is under the management of B. H. Morash.

## DAY-FAN QUIETUS CUTS OUT RADIO INTERFERENCE CAUSED BY DIRECT CURRENT MOTORS

The Day-Fan Electric Co. has developed a device, called the Quietus, which eliminates the radio interference trouble experienced with D. C. motors.

"Radio interference from electric refrigerators is caused mainly by D. C.



motors," according to Otis F. Lam, of the Day-Fan Electric Co., Dayton, Ohio. He explains that on all D. C. motors the brush carries current continuously and there is a certain amount of arcing. This arcing is what causes interference, he says.

Mr. Lam explains that no A. C. motor should cause radio interference except where there is a leak or a ground. When the motor is turned on it has the same effect as turning on a light globe.

## FRICK ISSUES HISTORICAL VOLUME ON REFRIGERATION

"Seventy-five Years of Progress" is the title of an interesting historical book on refrigeration prepared by the Frick Co., Waynesboro, Pa. It contains a summarized review of the development, not only of the Frick company, but of the entire refrigerating and ice-making industry.

A portion of the book is devoted to biography of George Frick and a description of the early days of the company. This is followed by a brief history of refrigeration from 330 B. C. to 1824 A. D. in which the methods of early refrigeration and machines are discussed. The development of the Frick unit is next described and numerous photographs show the improvements in the machine as years passed by. A section is also devoted to a discussion and description of the service that the company offers at the present time.

## Copeland District Managers to Attend Meeting on Jan. 31

Copeland district managers from all parts of the United States will gather in Detroit on January 31 for a conference prior to the annual sales convention which is scheduled for February 5 and 6.

## Peerless Gets Contract for Installation In 515 Apartment Project



The Peerless Ice Machine Co., Chicago, Ill., has closed a contract for what is reported to be the largest multiple installation of electric refrigeration in the world. This contract calls for the installation of six 3-ton Peerless ice machines in the Michigan Boulevard Gardens, a semi-philanthropic building project, being erected by Julius Rosenwald as a housing for colored people in Chicago.

This building, pictured above, will contain 515 apartments, 420 of which are to be erected immediately, and the other 95 this spring. It will be five stories high and will occupy a square block, running from 46th to 47th St., and from Wabash Ave. to Michigan Ave.

The six Peerless machines will be arranged in three batteries of two machines in each. Each unit will provide refrigeration for 85 apartments, and each battery will be cross-connected so that in case of a shut-down of one machine, the entire load can be carried by the other machine.

This order was closed by Gil Staderer of the Peerless Ice Machine Co. The architects who designed the building project are Klauer and Grunfeld, Chicago, and the B. W. Construction Co. has been awarded the contract for the construction of the buildings. A. C. King is the engineer in charge.

## "PLEASE CHANGE MY ADDRESS"

Recent movements of subscribers as indicated by changes in mailing addresses.

Addis, W. J., from 2823 Hudson, to 403 Carroll, Youngstown, Ohio.

Bozman & Bros., R. H., from 711 Harford Ave., to 1046-54 Granby St., Baltimore, Md.

Brown, W. E., from 221 Arnold Place Apts., to Forest Gables Apt., Apt. 20, 550 Forest, Dayton, Ohio.

Budington, T. C., from 5740 Alderson St., Pittsburgh, Pa., to 3593 Normandy Rd., Cleveland, Ohio.

Cohn, R., from 41-19 29th St., Long Island City, N. Y., to 2162 25th St., Astoria, La. I., N. Y.

Cosley, L. M., from 348 Adelphi St., Brooklyn, N. Y., to 35 Miller Pl., Hempstead, L. I., N. Y.

Davis, W. A., from 128 Drake Court, to 202 Alhambra Apts., Omaha, Neb.

De Loach, J. B. K., from 2822 Bedford St., to P. O. Box 426, Raleigh, N. C.

Diemer, Otto, from 47 Williams St., to 19 Woodrow St., Stamford, Conn.

Duffy, J. A., from 3407 Prospect Ave., Cleveland, Ohio, to 2138 E. 37th St., Brooklyn, N. Y.

Feeley, Rank J., from 665 Palm Haven Ave., San Jose, Cal., to General Delivery, Sacramento, Calif.

Gates & Wagny, from 29 S. Los Rables Ave., to 450 S. Raymond Ave., Pasadena, Calif.

Gibson, Paul, from 1145 Parkview, Marshall, Mich., to 1202 Woodland Drive, S. Louis, Mo.

Hallinan, Thomas, from 689 1/2 N. Park, Pomona, Calif., to 865 N. Hoover, Los Angeles, Calif.

Harris, J. G., from 1838 Malvern Ave., to 118 Cambridge Ave., Dayton, Ohio.

Hillwick, F. B., from 1709 Lagoon Ave., Apt. 5, Minneapolis, Minn., to 109 Atlas St., Akron, Ohio.

Jasmin, L. A., from 557 1-2 N. Harvard St., Los Angeles, Calif., to 1740 N. Winona Blvd., Tuxedo Apts., 107, Hollywood, Calif.

Kylberg, V. C., from 1378 Woolworth Bldg., New York City, N. Y., to 103 Baker St., Maplewood, N. J.

Linville, C. N., from 10833 Hathaway Ave., to 1734 Chapman Ave., E. Cleveland, Ohio.

McLean, J. Gordon, from 908 Penn St., to 152 Oley St., Reading, Pa.

Meloche, John G., from 1068 E. 37th St., to 1096 E. 38th St., Brooklyn, N. Y.

Mueller Brass Co., from 508 Kerr Bldg., Fort & Beaubien St., to 428 Curtis Bldg., Detroit, Mich.

Pedder, J. F., from 335 W. Fourth St., to 221 W. First St., Dayton, Ohio.

Richardson, R. E., from 1375 W. Grand Blvd., Detroit, Mich., to 5706 Walnut St., Pittsburgh, Pa.

Rood, Clinton, from 6901 Stony Island Ave., to 120 S. La Salle St., Box 3, Chicago, Ill.

Sharon, Harold F., from 1018 Allen Bldg., Dallas, Tex., to 14250 Plymouth Rd., Detroit, Mich.

Vogt, C. C., from 3407 Prospect Ave., to 1812 Euclid Ave., Cleveland, Ohio.

Wade, L. W., from 701 Francis Bldg., to 515-17 Fifth St., Sioux City, Iowa.

Wilderman, J. W., from P. O. Box 3067 to 4028 47th Ave., S. W., Seattle, Wash.

## REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries or who can supply additional information are invited to address Electric Refrigeration News, referring to the query number.

### Wants 150 Domestic Machines

Query No. 181—A reader in Wichita, Kans., writes, "I am in the market for about 150 small refrigerating units for family size boxes."

### Carbon Dioxide Ice

Query No. 182—A hardware concern in Missouri writes, "Will you please send us what literature you might have on what is called on the market 'Dry Ice,' or if you are unable to do this, advise us where we might obtain it."

Note—The Dry-Ice Corp., 50 East 42nd St., New York, N. Y., manufactures carbon dioxide ice which is sold under the trade name, Dry-Ice. The Carbo-Freezer Co., 11 West 42nd St., New York, N. Y., and the Solid Carbonic Co., Ltd., 100 East 42nd St., New York, N. Y., also manufacture carbon dioxide ice.—Editor.

### Interested in Dealership

Query No. 183—A concern dealing in machinery in Arkansas sends in the following request, "Will you please furnish us with a list of manufacturers of electric refrigerators? We are interested in a dealers proposition."

### Coils For Florist Refrigerator

Query No. 184—A firm dealing in electric refrigerators and oil burners in New York writes, "Will you kindly advise us of a manufacturer who may give us some information regarding coils suitable for a florist's refrigerator."

### Refrigerator Door Springs

Query No. 185—A concern manufacturing refrigerators in Pennsylvania makes the following request, "We are in need of a nickel-plated spring of sufficient strength to close a refrigerator door about 20"x20" on the same principle as a screen door spring. Can you advise us where we can procure these? We might state there is a 1" off-set on these doors that the spring will have to work over. Any information you can give us concerning this will be very much appreciated."

## Replies to Previous Queries

Query No. 166—B. L. Wescott, secretary of the General Refrigerating & Manufacturing Corp., Portland, Oregon, writes, "Please be advised that the Keep Kool electric refrigerating machine was first manufactured by two men by the names of Hibbard and Thompson, then it was taken over by the Peninsula Foundry Co., Portland, Oregon, who manufactured the Keep Kool unit up to about two years ago, when the General Refrigerating & Manufacturing Corp., purchased the refrigerating business from the Peninsula Foundry Co."

"The General Refrigerating & Manufacturing Corp. made numerous improvements and changes in the machine, and changed the name to King Boreas, which are being manufactured at the present time."

Query No. 179—Severn P. Ker, Jr., president of the Refrigerating Equipment Co., Wilmington, Del., writes, "Kindly advise the concern dealing in electric refrigerator supplies in New York City, who inquires relative to lids for ice cream containers, that the Refrigerating Equipment Co., Wilmington, Del., is the manufacturer of these lids and will be glad to communicate with them."

## HOLMES PRODUCTS, INC. HOLDS SALES MEETING AT BRIDGEPORT, JAN. 24

About 75 salesmen, sales representatives and officials of the Holmes Products Corp., Bridgeport, Conn., attended a meeting held at the Hotel Stratfield in Bridgeport on Jan. 24. This conference was called for a general discussion of sales problems.

Short talks were given at the meeting by the following Holmes officials: John Plummer, vice president and general manager; John Bickle, general sales manager; George Hotte, general works manager; John Benthin, production manager; Frank Peltier, chief engineer; John Sturgess, advertising manager; Hamilton Shields, treasurer, and John Baxter, general service manager. Plans were also discussed at this meeting for increasing production and making additions to the factory force at the Bridgeport plant.

## GENERAL REFRIGERATION AWARDS \$7,000 IN PRIZES

More than \$7,000 in prizes were awarded representatives of the General Refrigeration Co., Beloit, Wis., at the four-day convention held Jan. 16-19.

Ace prizes were awarded Frank H. Mead, sales engineer; F. T. Francis, Buffalo, and the Philadelphia Electric Co. There are now eleven members of the Ace club.

In the fourth quarterly sales contest the awards were as follows: Melbourne, Australia, \$200; Charlotte, N. C., \$150; Birmingham, Ala., \$125; Chicago, \$100; Los Angeles, \$90; Dallas, \$80; Atlanta, \$70; Detroit, \$60; Philadelphia, \$50; and Albany, \$40.

In the Zeppelin race for district managers who reached the largest percentage of their quotas, C. Sower won first of \$100; H. R. Brinkerhoff, second, \$80; and E. G. Reynolds, third, \$60.

Distributors who won prizes in their Zeppelin race and the amounts are: Chicago, \$445; Detroit, \$390; Birmingham, \$350; Albany, \$350; Philadelphia, \$305; Dallas, \$265; Charlotte, \$265; Madison, Wis., \$230; Rockford, \$195; Milwaukee, \$195; New York, \$195; Cleveland, \$195; Indianapolis, \$150; Buffalo, \$150; New Haven, Conn., \$150; Oklahoma City, \$105; Denver, \$105; Newark, N. J., \$105; Los Angeles, \$105; Hamilton, Ont., \$105; Grand Rapids, Mich., \$105; Tampa, Fla., \$105; Louisville, Ky., \$105; Omaha, \$75; Des Moines, \$75; Portland, Ore., \$75; Toledo, O., \$50; Columbus, \$50; San Francisco, \$50; Houston, \$50; San Diego, \$50, and Davenport, Ia., \$50.

A special prize of \$250 for prize winners in attendance went to the Philadelphia Electric Co., and a consolation prize of \$100 in the same class went to Milwaukee.

## NORGE ANNOUNCES NEW SELF-CONTAINED APARTMENT MODEL

Norge Corporation, Detroit, announces that a new self-contained model, which is expected to be ready for shipment to distributors by Feb. 15, has been added to its line to meet the demand for a small refrigerator for installation in small apartments and homes.

This new model has a food storage capacity of slightly more than four cubic feet and will be equipped with a one-sixth horsepower motor and the Norge rotary type compressor. Distributors report a large demand for this type of refrigerator, and the Norge Corporation is laying plans to put this model into quantity production as early as possible.

## H. M. Robbins, Exporter, Will Visit Foreign Distributors

Harry M. Robbins, president of the H. M. Robbins Co., exporters, Detroit, sailed for Europe, Jan. 5. He will visit several countries, calling on the distributors of the lines handled by the H. M. Robbins Co., including Copeland electric refrigerators, Gottfredson motor trucks, Hardie car washers, Romort air meters, and Henney hearses. Mr. Robbins went on the Conte Grande to Naples.

## Pleased With Jan. 2 Issue

"The January 2 issue is certainly a fine issue. We haven't as yet had time to digest all that's in it, but we shall look it over very carefully indeed."—Albert E. Thornley, vice-president, Narragansett Machine Co.

## THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

## POSITIONS AVAILABLE

REFRIGERATOR CABINET SALESMEN WANTED by a concern of thirty years' repute, high rating and of national reputation. Following an expansion sales policy, new territory available. Must be able to earn \$5,000.00 or more per annum, must also furnish bond. Applicants who can meet our requirements will be given a personal interview. When writing please state in full all your qualifications, personal and general. Box No. 139.

CARPENTER WANTED—Highly experienced essential, one familiar with the construction of high grade refrigerators, to take charge of entire refrigerator construction department of a reputable eastern manufacturing organization. Address Box No. 141.

TINSMITH WANTED—One familiar with the new methods of constructing all metal refrigerators. Must be highly experienced, and capable of supervising the sheet metal department of a reputable eastern manufacturing organization. Address Box No. 142.

ENGINEERING EXECUTIVE WANTED. One of the most active electric refrigeration manufacturers has an opening for a high class man to take charge of both research work and production design. General technical and executive ability may outweigh years of experience in refrigeration. Box No. 143.

## POSITIONS WANTED

MANAGER OR SALES MANAGER. Several years experience in Kelvinator. Thoroughly familiar with all phases of business. Wants to make connection with Distributor. Excellent references as to character, integrity, and ability. Available on reasonable notice. Address confidentially. Box No. 137.

## Refrigeration Service Co. Inc.

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### Safety Magnetic Switch

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## PATENTS

Searches, reports, opinions  
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## Refrigeration

H. R. VAN DEVENTER

Solicitor of Patents

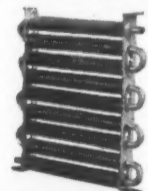
Refrigeration Engineer

342 Madison Ave., N. Y.

? Why glue ice  
cubes to metal

## Specify

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Large manufacturer of Soda  
Fountains of quality wants jobbers to  
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Address Box No. 138 Electric Refrigeration News

## Subscription Order

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Please enter subscription to Electric Refrigeration News.

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☐ \$2.00 per year. ☐ Three years for \$5.00.

All other Countries:

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Name.....

Street Address.....

City and State.....

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# ELECTRIC REFRIGERATION NEWS

The business newspaper of the refrigeration industry

VOL. 3, No. 12, SERIAL No. 62

Copyright, 1929, by  
Business News Pub. Co.

DETROIT, MICHIGAN, FEBRUARY 13, 1929

Entered as second class matter August 1,  
1927, at the Post Office, Detroit, Michigan.

PRICE FIFTEEN CENTS

## SERVEL, INC. SHOWS A NET PROFIT OF \$236,398 FOR 1928

Represents \$5.52 a Share on  
Preferred Stock Outstanding.

NET profits of \$236,398.10, after writing off depreciation, interest charges and \$193,058 expense incurred in maintaining good will service, are reported by Servel, Inc., for the year 1928, the first full year reported since the company's reorganization. The net profit represents \$5.52 a share on the 42,800 shares of preferred stock outstanding.

In his report to the stockholders, Col. Frank E. Smith, president, states that during the year the company's manufacturing, selling and financial conditions were all materially improved, pointing out that \$4,120,800 of senior securities were retired during the year, including \$610,500 of 6% gold notes, \$1,290,300 of 5% first mortgage gold bonds and \$2,220,000 of preferred stock.

Net quick assets at the close of the year amounted to \$6,051,189 as against \$5,556,323.31 at the beginning of the year, an increase of \$494,865.82. Ratio of current assets to current liabilities was approximately sixteen to one. Cash on hand and call loans as of Dec. 31, 1928, amounted to \$2,227,740 against \$2,116,189 on Jan. 1.

Accounts and notes receivable acquired by the new company from the reorganization committee which amounted to \$600,000 on Jan. 1, 1928, were liquidated 90% by cash collection during the year, more than \$540,000 being received. The balance of \$60,000 is in the hands of attorneys for collection.

### Domestic Line Augmented

President Smith comments in his report on the rapidity with which the company's products, Servel, Electrolux and Hercules gained in distribution and sale. The Electrolux Gas Refrigeration Division began the year 1928, its first year of distribution, with only one standard model on sale, and closed the year with seven, covering all ordinary household needs. Electrolux is now available for operation on city gas, natural gas and compressed gas; also electricity. Distribution exists in practically all key cities, and a comprehensive national advertising campaign was inaugurated in November, 1928, and will run through 1929, the report states.

With respect to the Servel line of electric refrigerators, the report states that seven different sizes were produced during the year, and a new style note in design and color introduced which proved a timely selling point. During the year, the company entered the commercial refrigeration and water cooler fields, and both are to be intensively cultivated during 1929, it is stated.

"The business in Hercules Better Business Truck Bodies increased approximately fifty per cent over 1927," President Smith states. "The company is now making bodies for the three largest light truck chassis manufacturers in the country, and has just erected an assembly plant in Canada for Canadian and other British Colonial distribution."

Colonel Smith's report concludes with the statement that the company "enters the year 1929 with an improved line of dealer proven products reasonably priced on a fair margin of profit. Its financial, manufacturing and selling circumstances, personnel and methods, have been developed to a high point of efficiency and the prospects for successful and profitable results for the ensuing year are exceedingly favorable."

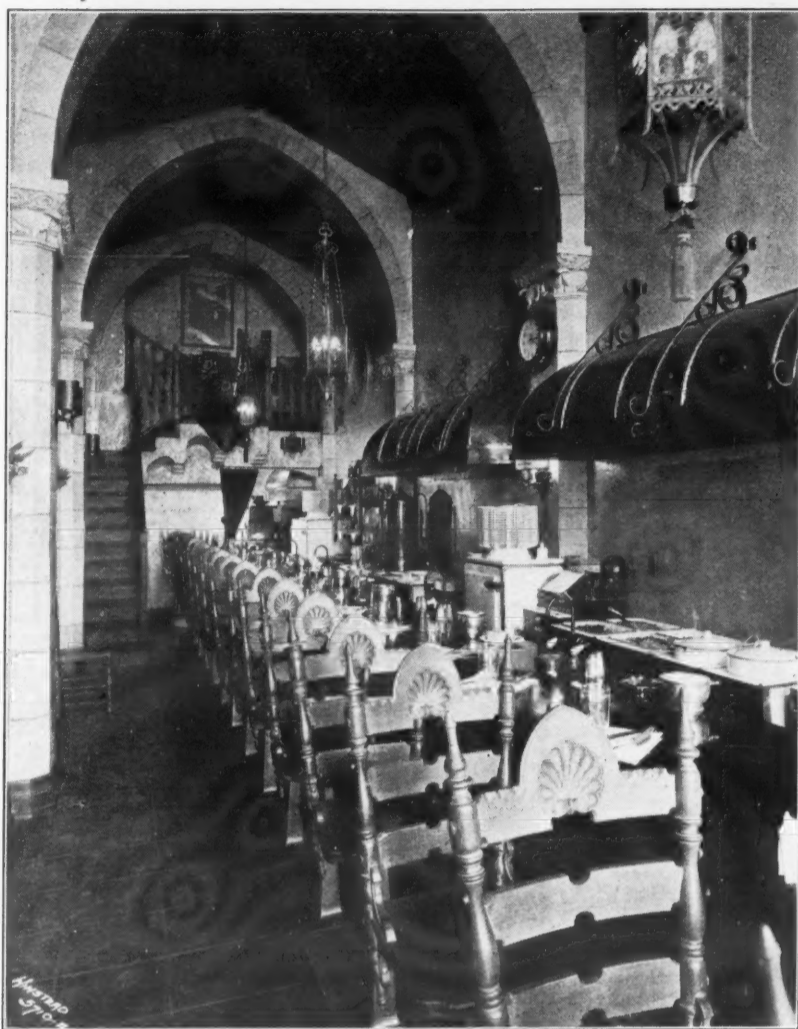
## DEPT. OF COMMERCE REPORTS SMALL UNIT PRODUCTION FOR 1927

Total Value for Year Was  
\$96,513,649.00

The Department of Commerce announces that, according to data collected at the biennial census of manufacturers taken in 1928, the establishments engaged primarily in the manufacture of mechanical refrigerators in 1927 reported 388,888 electric refrigerating units, with cabinets, valued at \$67,314,916; 86,100 electric refrigerating units without cabinets, \$9,762,861; and other products, including gas refrigerators and units, \$19,435,872; making a total value of \$96,513,649. The output of gas refrigerators cannot be shown separately without disclosing the production of individual establishments.

Of the 22 establishments reporting for 1927, 7 were located in Michigan, 3 in Indiana, 3 in New York, 3 in Ohio, 2 in Illinois and 1 each in Iowa, Massachusetts, Missouri and Washington.

## Electric Cooling Solves Short Order Problems In Chop House



Four General Electric units are used in Martin's Chop House in Long Beach, Calif., for the storing of butter, milk, cream, steaks and chops. See story by Helen Lockwood Coffin on page 15.

## PROFESSOR A. J. WOOD MEETS WITH LOCAL SECTIONS OF A. S. R. E.

Visits Detroit, Milwaukee and  
Chicago Groups This Week

PROFESSOR A. J. Wood of Pennsylvania State College, president of the American Society of Refrigerating Engineers, addressed members of the Detroit Section at the Engineering Society's Building Tuesday evening, February 12. He emphasized the great opportunities opening to the refrigerating engineer of today and called attention to the remarkable progress which has been made in very recent years. He pointed out the community of interest between refrigeration and other branches of engineering. The chemist, metallurgist, electrical engineer and industrial engineer are among those who are keenly interested in the refrigeration developments. One survey, he said, revealed that eighty major industries are concerned with the turning out of a refrigerator box.

Professor Wood urged members of the Detroit Section to make plans to attend the Spring Meeting of the National Society to be held at State College, Pa., June 20 to 22. Among the interesting attractions at the college will be the research laboratories which have made some outstanding contributions to refrigeration, also a comprehensive exhibit of all kinds of insulating materials which have been collected for test purposes. A full program is being arranged and special attention will be devoted to the preservation of food, the design of refrigerator cars and developments in connection with domestic machines.

Following Professor Wood, talks were given by C. F. Belshaw of George B. Bright & Co. and H. I. Phillips of the Flintlock Corp., Detroit. Glenn Muffly, chief engineer of Copeland Products, Inc. and vice-president of the Detroit section was chairman of the meeting. R. G. Nelson reported for the Membership Committee. Roger Braun of the Nomenclature Committee reported that work will be continued on the standardization of terms applying to the domestic machine, the industrial field having already been fairly well standardized in this respect.

The next meeting, in March, will be a joint session with the Detroit Engineering Society. The program of the April meeting will focus attention on the

(Concluded on page 13, column 3)

## NEW EQUIPMENT NUMBER MAR. 13

In the March 13 issue the new 1929 lines of electric refrigeration equipment will be illustrated and described in detail. Manufacturers are invited to furnish full information regarding all new products and improvements for the editorial columns.

The next issue, February 27, will contain valuable information regarding the various refrigerants now being used in the leading makes of machines.

## ROOM COOLER; COLD CONTROL ANNOUNCED BY FRIGIDAIRE CORP.

Also New Small Domestic Unit  
And Two-Temperature  
Switch

AN ELECTRIC room cooler, a cold control providing six freezing speeds in the ice trays of household models, a smaller household model with a factory price of \$170 and a new line of electric water coolers are announced by Frigidaire Corporation, Dayton, Ohio. The new products together constitute the most significant and progressive step yet taken by the organization, E. G. Biechler, president and general manager said.

"The room cooler marks the entry of the small mechanical refrigeration unit into a new field," he said. "In experimental tests it has lowered the temperature of an average size living room or office as much as ten degrees in thirty minutes. The height of the room does not affect its capacity, as the temperature of only a few feet of air near the floor is affected by its operation."

Humidity of the room is also lowered to a marked degree, which makes it of particular value in many climates during summer months. The cooler is approximately four feet high and weighs 210 pounds. It operates with a fan that circulates 450 cubic feet of air a minute over cooling coils through which the refrigerant is pumped by a small motor.

Temperature variations in the freezing trays, made possibly by the cold control, open a much wider field in the culinary art, it is said. Various delightful combinations are frozen perfectly when the

(Concluded on page 8, column 1)

## REFINEMENTS IN CABINET CONSTRUCTION AND MACHINE DESIGN MARK NEW MODELS

1929 Lines Show Many New Features;  
Distributors Enthusiastic About  
Increased Sales Possibilities

## COPELAND ANNOUNCES IMPROVED MODELS TO ENTHUSIASTIC GROUP

400 Attend Annual Convention at  
Detroit, Feb. 5-6

EXPANSION and bigger business, a consolidated and more compact line, covering every angle of electric refrigeration, a "moderate" profit for 1928, an extensive advertising program; these are the high spots of the fourth annual convention of the Copeland Products, Inc., at Detroit, Feb. 5 and 6, Copeland's biggest convention yet, and which was attended by some 400 distributors and dealers from all over the United States, Canada and from a few points in the foreign field.

More business and expansion was the keynote of the convention as sounded by William Robert Wilson, chairman of the board of directors. "Copeland," said Mr. Wilson, "has been growing steadily and healthily and will continue so. During this year we shall see a bigger growth than ever. Conservatively, I would estimate our growth in business at from 25 to 50 per cent for this year. Our business policy has been sound, and Copeland will show a moderate profit when the figures are announced. This profit will place Copeland well to the front of the electric refrigeration as a profit producing company." Mr. Wilson also hinted at extensive expansion plans being under consideration.

Copeland's new line of domestic refrigerators, featured by silent operation, was exhibited by W. D. McElhinny, vice president in charge of sales. With his usual sense of the dramatic, he staged this in true McElhinny fashion. Standing on the stage, "Mac" called for a broom. To and fro he swept. "Can you hear that?" he called. "Yes," came the answer from the galleries. Softer and softer he swept. Still it could be heard. Then he drew out a bill. (No, it wasn't a twenty as rumor had it. It was only a one.) Holding it arm's length, he dropped it. "Can you hear that?" he asked. Again the reply from the galleries, "yes."

Then "Mac" grabbed a veiling covering two Copeland refrigerators and pulled it aside. "Can you hear that?" he shouted. "No," thundered the crowd from the front seats to the gallery. "Fine," smiled "Mac." Those boxes have been running all the morning.

Copeland's domestic line is in three broad divisions, low priced, medium priced and de luxe. The De Luxe line this year uses a cabinet by Seeger with sizes running from 6.5 cubic feet storage capacity and freezing 108 ice cubes up to the big box containing 20 1/2 cubic

(Concluded on page 4, column 1)

## AMERICAN RADIATOR CO. AND STANDARD SANITARY MFG. CO. CONSOLIDATE

Announcement was made on Feb. 2 of the consolidation of the Standard Sanitary Mfg. Co., Pittsburgh, Pa., and the American Radiator Co., New York. A holding company to arrange for exchange of stock of the two companies was organized. Combined net profits of American Radiator Co. and Standard Mfg. Co. for 1928 amounted to approximately \$24,300,000.

## Dry Ice Corp. to Erect Plant at Niagara Falls, N. Y.

The Dry Ice Corp. of America, Inc., New York, N. Y., has made arrangements for the erection of a plant at Niagara Falls, N. Y., for the manufacture of Dry Ice. The company, as announced some time ago, is building a plant at Newark, N. J.

REMARKABLE quietness of operation, cabinets of beautiful design and finish, standardization of parts and accessories with greater flexibility in application to domestic and commercial requirements, increased capacity range, higher efficiency and numerous refinements in detail characterize the new 1929 lines of electric refrigeration equipment being presented by manufacturers at national and local meetings of distributors and dealers. That the manufacturing branch of the industry has taken a big stride forward is evident to anyone who has had the privilege of attending recent gatherings at which the new models have been displayed. It is evident to even the casual observer that the engineering and production executives have not only caught up with their problems but that they are ahead of them. Listening to an explanation of the fine points of the 1929 production, one gains a definite impression that the mere matters of reliability and satisfactory service are no longer points of issue. These essentials are taken for granted.

It is apparent that the 1929 sales talk will contain many references to the beauty of hardware finish, the convenient arrangement of shelves, the slick rubber ice tray, the glistening enamel, the color combinations and the easy deferred payment plan. The prospect who ventures to request that the machine be put into operation will notice a lifting of the eyebrows as the salesman politely replies: "Why madam it is running now. Listen closely and perhaps you can hear it."

## KELVINATOR '29 LINE HAS FIRST SHOWING AT DETROIT MEETING

Will Be Presented to Dealers at  
Each of 21 Regional Sessions

EVIDENCES of an improved organization, new and better equipment, and progressive sales promotion and advertising plans for the coming year were warmly received at a regional convention of approximately two hundred Kelvinator dealers and distributors who met at the Kelvinator factory in Detroit on Feb. 8 for the first of a series of conventions, of which twenty-one will be held in key cities throughout the country during the month of February.

H. W. Burritt, vice president in charge of sales, opened the morning session introducing Kelvinator's new president and general manager, George W. Mason.

Mr. Mason said in part: "I do not believe there is a product on the market today that compares with electric refrigeration in so far as selling and rendering service is concerned. We are in position in this industry to render service in many channels. It insures health and sanitation and there is no greater foundation in any other industry. From a point of pioneering Kelvinator is the oldest and is entitled to first place in this industry."

"On the question of organization, there have been some changes. In the first place our board was reduced in number from 21 to 10. We have a board made up of sound business men, men who are keenly living in this picture. Our board stands squarely behind the present management."

"This company has ample finances. It

(Concluded on page 5, column 1)

## LESLIE ARNETT AND A. B. COOK ARE ELECTED VICE PRESIDENTS OF STANLEY KNIGHT COMPANY

Leslie Arnett and A. B. Cook were elected vice presidents of the Stanley Knight Co., Chicago, Ill., manufacturers of soda fountains and accessories, at the annual meeting which was held on Jan. 26. Mr. Arnett, sales manager, of Chicago, has been with the company for the past five years, while Mr. Cook, eastern representative at Boston, Mass., has been associated with the concern for the past seven years.

## N. E. L. A. COMMITTEE MAKING PROGRESS ON EDUCATIONAL PLAN

Merchandising Bureau Meets in Chicago, March 20, 21, 22

EXCELLENT progress on plans for a co-operative educational program was reported by the refrigeration committee of the National Electric Light Association at a two-day meeting of the N. E. L. A. Merchandising Bureau held under the chairmanship of F. D. Pemberton at the Book-Cadillac Hotel, Detroit, Feb. 5 and 6.

C. L. Dunn of the Ohio Public Service Company, Cleveland, chairman of the N. E. L. A. refrigeration committee explained the proposed program for a "Refrigeration Week," the exact date of which has not yet been definitely determined. A sub-committee has been giving a great deal of time to the details of the plan and members of the refrigeration committee present at the meeting were greatly impressed with the thoroughness with which the campaign is being worked out. Some important parts of the plan are as yet incomplete and the committee has therefore postponed making a definite announcement. No doubt it will be presented in full at the next meeting of the Merchandising Bureau to be held at the Edgewater Beach Hotel in Chicago, March 20, 21 and 22.

Those present at the meeting of the committee were:

Walter Daily, Electric Refrigeration Dept., General Electric Co., Cleveland, Ohio.  
J. Hall Truman, Jr., Allied Power & Light Corp., New York, N. Y.  
L. J. Montgomery, New York & Queens Electric Light & Power Co., New York, N. Y.  
H. W. Henning, Public Service Electric & Gas Co., Jersey City, N. J.  
J. S. Sayre, Kelvinator Corp., Detroit, Mich.  
Louis S. Leavitt, Electric Light & Power Magazine, Chicago, Ill.  
C. L. Dunn, Ohio Public Service Co., Cleveland, Ohio.  
C. K. Nichols, New York Edison Co., New York, N. Y.  
Kenneth McIntyre, Society for Electric Development, New York, N. Y.  
C. E. Greenwood, National Electric Light Association, New York, N. Y.  
F. D. Pemberton, Public Service Electric & Gas Co., Jersey City, N. J.  
Eli C. Bennett, Bennett, Watts, Haywood Co., Chicago, Ill.  
E. F. Schmidt, Toledo Edison Co., Toledo, Ohio.  
H. E. Young, Northern States Power Co., Minneapolis, Minn.  
J. A. Corcoran, Kelvinator Corp., Detroit, Michigan.  
F. M. Cockrell, Electric Refrigeration News, Detroit, Michigan.

## SANITARY REFRIGERATOR ELECTS NEW OFFICERS

To Seek Authorization For Stock Change

Directors of the Sanitary Refrigerator Co., Fond Du Lac, Wis., elected William Mauthe as president at the annual meeting, which was held on Jan. 22. Other officers chosen by the board are as follows: Herman Uhlein, vice president; B. K. Miller, secretary, and H. R. Potter, treasurer. Directors who were elected at the annual meeting of the stockholders are: H. R. Potter, B. K. Miller, Carlton Mauthe and William Mauthe of Fond Du Lac and Herman Uhlein of Milwaukee.

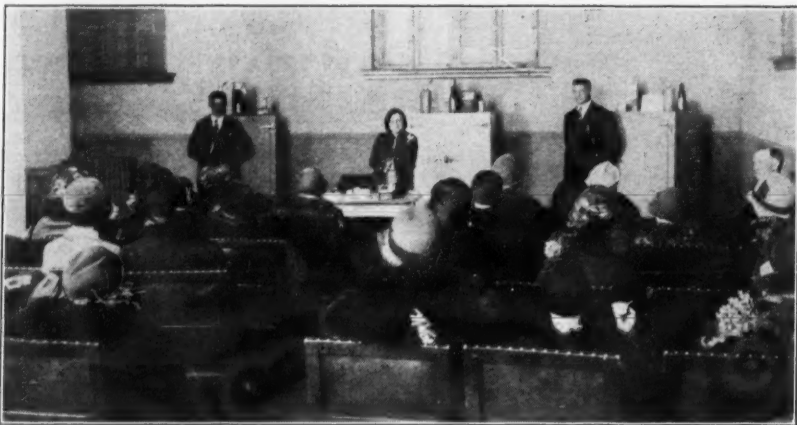
Authorization for a change in the stock issue of the company is asked in a resolution which was adopted at the annual meeting. This resolution provides that the articles of organization be amended to provide issuance of 24,000 shares of no-par common stock in the company in exchange for the present 4,000 shares of common stock of \$100 par value per share.

## Standard Cases, Excelsior Equipped Provide Neat Display in Grocery



The Campbell Grocery and Delicatessen Store, Philadelphia, is equipped with a Standard refrigeration display case, manufactured by the Standard Refrigerator Co., Philadelphia. It is provided with a double circulation feature to reduce drying. The case is equipped with an Excelsior model 5 compressor, installed by the Engineering Co. of Philadelphia. Walter S. Campbell is owner of the store.

## Sparklet Ice Cream Attracts Crowd Despite Sub-Zero Weather



Sub-zero weather did not hurt attendance at a Sparklets ice cream demonstration given at the City Coal Co., Regina, Canada, recently. Mrs. Nella Stewart, director of the Home Service department of the Sparklet company gave the demonstration. The City Coal Co., distributes Welsbach refrigerators. The actual temperature was 22 degrees below zero and one woman came a distance of twenty miles.

## COMMONWEALTH EDISON EXPANDS REFRIGERATION MERCHANDISING POLICY

Kelvinator, Frigidaire and Servel to be Carried Now

The Commonwealth Edison Co., Chicago, has enlarged its refrigeration activities, so that three makes of electric refrigerators, Kelvinator, Frigidaire and Servel, will be distributed by the company. For a number of years the company has sold only one make. It is planned to add several more makes later.

Entering into the electric refrigeration field on this new and larger scale has occasioned rearrangements in the organization. The refrigeration section of the lighting division has been enlarged and placed under the supervision of W. T. Reace, while G. D. Wetherbee will continue as refrigeration engineer. Five salesmen have been assigned to call on architects and builders, fifteen on homes and four on commercial establishments. Installation of a new display section in the Electric Shop is now under way. Almost the entire north side of the Dearborn Street section will be completely rearranged and devoted to an extensive display of the three lines now being sold by the company.

## FRIGIDAIRE ERECTING NEW FACTORY BUILDING

Contract for the erection of a two-story, concrete factory building in Dayton has been awarded by the Frigidaire Corp., Dayton, Ohio, to the Danis-Hunt Construction Co.

This building, on which work has already been started, is located at Keowee and Amelia streets and will cost approximately \$35,000. It is 40x150 feet and is necessitated through increased production in the past few months. It will be ready for occupancy by April 1.

### Kelvinator Dealer Remodels

The Worcester Electric Light Co., Kelvinator dealers, Worcester, Mass., recently remodeled their quarters on Foster St. Large plate glass windows across the front allow an unobstructed view of the full store and display of Kelvinators.

## ENGLISH ICE INDUSTRY DISCUSSES A NATIONAL ADVERTISING CAMPAIGN

The suggestion that an advertising fund should be raised in England among ice manufacturers on the basis of \$5 per ton per daily output was made at a general meeting of the members of the National Federation of Cold Storage and Ice Trades, in London, England, recently. The fund raised would be used in a national advertising campaign in the interests of the ice trade exclusively.

## ELECTROLUX MAN ADDRESSES SOUTHERN GAS CONFERENCE

The Second Southern Regional Gas Sales Conference was held at the Atlanta Biltmore Hotel, Atlanta, Ga., Jan. 15 and 16.

Subjects of interest to the gas industries were discussed. Among the speakers were George L. Roach, assistant sales manager of Electrolux, Servel Sales Inc. He spoke on "Gas Refrigeration Sales and Service."

Mr. Roach discussed with the members of the conference the various merchandising plans used by gas companies in the development and sale of refrigerators and demonstrated the value of the refrigerator as a load building factor.

## B. Badrian Leaves Society for Electrical Development

Bernard Badrian, former supervisor of the wiring promotion department of the Society for Electrical Development, has resigned from this position to become associate in the firm of Goodwin, Morton & Badrian, market counselors at 522 Fifth Avenue, New York City.

Robert G. McPhail of the league and field department of the Society has been appointed temporarily to fill the vacancy.

## G. E. Baker Now Apartment House Specialist for Oregon Firm

Appointment of George E. Baker as apartment house specialist was recently announced by the Arch Electric Co. Inc., Portland, Ore., distributors of General Electric refrigerators.

Mr. Baker was formerly manager of the refrigeration department of the Northwestern Electric Co., Portland, and has had several years experience in refrigeration sales work.

## F. S. Strite Opens Office in New York City

F. S. Strite, consulting engineer in ice making and cold storage plants and general application of mechanical refrigeration, announces that he has opened office at 1819 Broadway, New York, N. Y.



**Wirfs** PATENTED  
**"AIRTITE" GASKET**

Write for samples and prices, today.

**E. J. Wirfs Organization, Inc.**  
135 S. 17th St. • St. Louis, Mo.



## The sign of a truly MODERN APARTMENT

On February ninth a full page advertisement in colors with the illustration and heading above appeared in the Saturday Evening Post. It was a direct sales appeal to both apartment house dwellers and landlords.

This is but typical of the continuous endeavor of General Electric Refrigerator to aid its dealers and distributors in selling.

Back of General Electric Refrigerators for 1929 is a million dollar magazine advertising campaign;

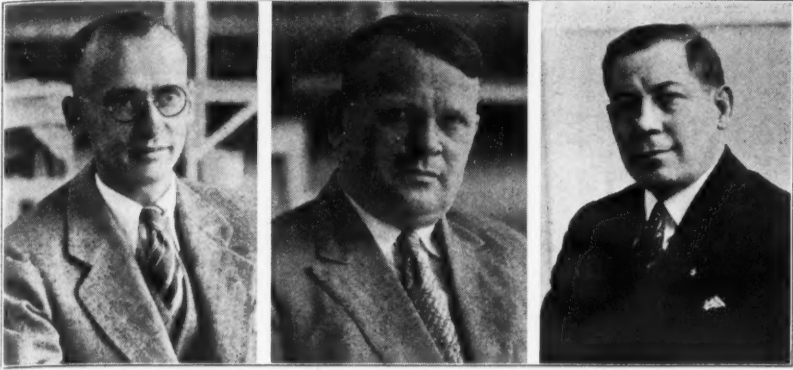


more than a million dollars of newspaper advertising and similarly great outdoor advertising, direct mail and sales promotional activities. Each dealer and distributor becomes a cooperator in a definite and prearranged advertising and selling plan.

Leadership is assured not merely by the outstanding merit of the product and the goodwill of its name but by the further definite sales aid rendered to every distributor, dealer and salesman.

**GENERAL ELECTRIC**  
**Refrigerator**

## Servel Sales Announces Appointments and Changes in Personnel



G. L. Roach

E. F. Theis

E. V. Vining

E. V. Vining has been appointed Servel sales manager, by Servel Sales, Inc. He will have charge of sales and service of both domestic and commercial Servel electric refrigeration. Mr. Vining was formerly with Copeland Products, Inc., as West Coast manager in charge of field sales promotion and dealer contact work. He has also been dealer and distributor.

F. P. Nehrhas has been made vice

president in charge of engineering and production.

E. F. Theis has recently been made general production manager. Mr. Theis has been with Servel Sales, Inc., since 1927, having been in the automobile production.

George L. Roach, formerly general service manager, has been appointed Electrolux assistant sales manager with the responsibility of Electrolux service.

## NORTH AMERICAN LT. & PR. GROUP REPORTS SALES OF 3,162 UNITS FOR 1928

Eighty-Eight Machines Sold in Last Week of December

The North American Light & Power Co., Chicago, Ill., reports that its subsidiaries sold 3,162 electric refrigerators during the year 1928. Sales by the various groups for that period were as follows: Missouri, 379; Kansas, 395; United, 608; Southern, 436; Western, 322; Northern, 156; Central, 618, and Iowa, 248.

Merchandise sales for the year totaled approximately \$4,400,000.00, or nearly double the sales for the year 1927. During the last week of 1928 eighty-eight electric refrigerators were sold by the subsidiaries.

## REFRIGERATION TO BE SHOWN AT SEATTLE ELECTRIC EXHIBIT

Extensive displays of electric refrigeration are being planned for the electric show which will be held at Seattle, Wash., during the week of March 25 to 30. Exhibits will be grouped on the second floor of the Liggett Building. The electric week in Seattle is being sponsored by the American Broadcasting Co. of that city.

## Chicago Company to Sell Electric Refrigerators and Oil Burners

The Howard Home Appliance Co., 9003 S. Ashland Ave., Chicago, has been formed to handle electric refrigerators and oil burners. Officers of the new company are: G. E. Blake, J. D. Shane and G. R. Kennedy.

## EXECUTIVES ADDRESS FRIGIDAIRE MEN AT ATLANTA CONFERENCE

600 Attend Meeting on Feb. 1. 1928 Quotas Exceeded.

THE Atlanta district of Frigidaire Corp. exceeded its 1928 quota by 231 per cent, according to reports at a conference of 600 salesmen held at Atlanta, Ga., Feb. 1.

Thirty executives from Dayton attended the session. J. A. Harlan, sales manager, opened the meeting and introduced E. G. Blechler, president and general manager.

Other speakers from the Dayton office included C. F. Kettering, vice president in charge of research; R. F. Callaway, manager of branches; T. B. Fordham, works manager; E. D. Doty, advertising manager; H. H. Lehman, service manager; J. E. Houser, chief inspector; R. L. Lee, in charge of sales promotion; L. S. Keilholtz, chief engineer; Miss Verna L. Miller, home economist in charge of experimental kitchen; and S. A. Long, Wichita, Kans., distributor representing the field force of the company.

A banquet concluded the day's program. Members of the national salesmen's club in the Atlanta district were presented with \$100 in gold and the emblem of membership. Those receiving the memberships were: J. A. Woodruff, W. E. Hudson, R. W. Goodrich, and Allen Stewart, Atlanta, Ga.; B. P. Mays, and J. O. Mathewson, Augusta, Ga.; E. T. Watson, Macon, Ga.; M. W. Baird, and J. O. Brown, Columbus, Ga.; A. J. Winegar, Knoxville, Tenn.; J. E. Douglas and George Crumbliss, Chattanooga, Tenn.; G. W. Trask, J. L. Fahey, and E. P. Nixon, Nashville, Tenn.; R. F. Newton, Gastonia, N. C.; R. H. Dillon, Goldsboro, N. C.; D. L. Brock, Greenville, S. C.; J. W. Durst, and J. Craig, Greenwood, N. C.; S. O. McConnell, Spartanburg, S. C.; W. J. Reusing, Asheville, N. C.; T. R. Yarbrough, Tampa, Fla.; Ralph Holgerson, Jacksonville, Fla.; and F. A. Correa, Miami, Fla.

Many new products of the company were on display for the first time in the South in the lobby of the Ansley Hotel. Among the exhibits were the new electric room cooler, the new cold control, a complete line of new water coolers for use in the home and office and new domestic models.

## YOUNGSTOWN ELECTRICAL LEAGUE ELECTS OFFICERS

Seven directors of the Electrical League of Youngstown, Ohio, were elected at the annual meeting, which was held in the Y. M. C. A. auditorium on Jan. 28. The following directors were elected to serve during the year: W. A. Maloney, Stambaugh-Thompson Co.; T. E. Miller, Pennsylvania-Ohio Power & Light Co.; Lloyd Robinson, Electrical Contractors' Association; H. D. Sommer, Mook Electric Supply Co.; E. D. Sutton, William F. Gray, Inc.; A. N. Thomas, Westinghouse Electric & Manufacturing Co., and E. J. Beil, Electrical League of Youngstown.

At a meeting of the new board of directors on Feb. 5, the following officers were elected to serve during the ensuing year: H. D. Sommer, president; A. N. Thomas, vice president, and E. J. Beil, secretary and treasurer.

## Fred M. Hancock With Copeland

Fred M. Hancock, formerly commercial sales engineer with Kelvinator Sales Corp., is now with Copeland Products, Inc., in a similar capacity.

## FROSTED FISH LUNCHEON SERVED AT G. E. MEETING

A fish luncheon was served during the recent meeting of sales promotion and advertising managers of General Electric Co. The seafood dishes included in the menu were buttered clams, fried fillet of sole, and shrimp salad. Only after complete satisfaction with the lunch had been expressed by the guests was it disclosed that all fish served had been prepared by frosting. It was pointed out that frosting is a new process of quick freezing but with such different results that the term "frosted" has been applied to avoid confusion with the opinion formed by the public before quick freezing had been developed to a satisfactory process.

In frosting, fresh fish taken out of the vessels are immediately cleaned, boned, cut into fillets, wrapped, sealed and then frozen at 50 degrees below zero. It was pointed out that slow freezing causes large ice crystals to form which break down the cell structure and leaves the product a soft pulpy mass after thawing. Frosted fish retain the same cell structure as that of the fresh fish.

The group was told that frosted fillets are being sold in the Middle West and the South and that dealers are finding they are easy to sell because they are packed like a pound of print butter. Women like fish in this form because it is ready to cook. It was suggested that some day one may find packaged meats and poultry put up in this way.

## SMALL MOTOR MAKERS CONVENE IN CHICAGO

### Washing Machine Men Oppose Specification Changes

Representatives of companies making fractional horse-power motors and manufacturers of electric washing machines met at the Palmer House, Chicago, January 17, to discuss recommendations of the Joint Committee covering design of small motors for washing machine service.

Arguments were presented by the washing machine men opposing any immediate change in the specifications which would act to increase the cost of their product and possibly incur service difficulties. The proposed changes adopted some time ago, to take effect January 1, 1929, were sponsored by the central station companies mainly to improve load conditions on their lines.

The discussion brought out that approximately 800,000 washing machines were sold in 1928, based on returns from manufacturers representing over ninety per cent of the total production. The average retail price amounted to \$132.00 against the average price of \$142.00 the previous year.

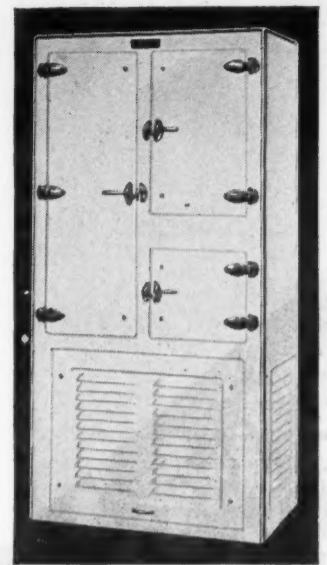
The split-phase type of motor has been generally used by the washing machine companies and, they assert, has been giving complete satisfaction to their customers. The new condenser type of motor, which is said to provide distinct advantages in operating characteristics, is being offered for washing machine service. Some of the leading manufacturers, however, are not yet in production on this type and some doubt remains as to the additional cost, if any, over the split-phase type.

## A National Acceptance

The gratifying reception that has been accorded the NEW BOHN SANITOR series is undoubtedly due to its low price—but by no means to price alone, for in every detail of its construction BOHN standards have been adhered to rigidly. Here is a super-quality, all-porcelain refrigerator that is as beautiful in appearance as it is efficient in service. Quantity production brings its price within the reach of the majority of families in your community.

These models together with those of the other famous BOHN Lines combine to make a group of refrigerators that answer every requirement in style, size and price.

Our catalog gives complete information and it is yours for the asking.



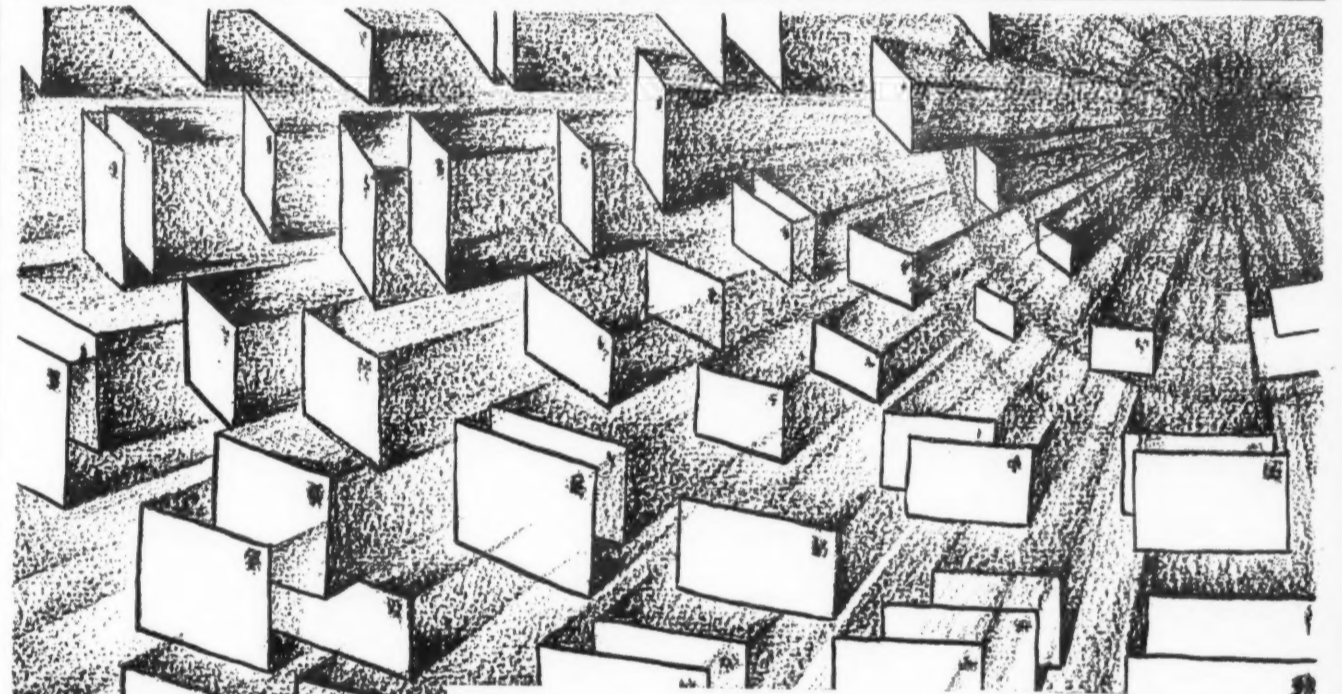
Nothing finer can be said of a refrigerator than "It was built by BOHN."

**BOHN REFRIGERATOR COMPANY**  
SAINT PAUL, MINNESOTA

NEW YORK

CHICAGO

BOSTON



## DELUGED AND WE LIKE IT

Since we first gave notice to the public (through The Saturday Evening Post) and to the trade that we were bringing out a new, advanced electric refrigerator, letters have poured in.

They have come from all parts of the country—a concrete, undeniable evidence of the fast-spreading news of this newer and better electric refrigerator, and of the unusual opportunity it offers distributors and dealers.

Satisfied? Not yet! We will still welcome inquiries from the right sort of concerns . . . Concerns that are well financed and capably managed by men with vision and initiative . . . Concerns that can see the tremendous possibilities in the new Holmes. Concerns that mean business. Wire or write.

**HOLMES PRODUCTS, INC.**

General Offices:  
205 E. 42d St., New York

Works:  
Bridgeport, Conn.

**HOLMES**  
ELECTRIC REFRIGERATOR

© 1929, H. P. INC.

## Stage Exhibit of 1929 Copeland Models Is Viewed By More Than 400 Distributors and Dealers



Sessions of the two-day Copeland convention, Feb. 5-6, were held at The Players Playhouse, 3321 E. Jefferson, Detroit. Stage equipment made it possible to present the new models in the domestic and commercial lines in a most interesting manner, under the direction of W. D. McElhinney. A buffet luncheon was served in the Playhouse on each of the two days.

### COPELAND PRESENTS IMPROVED MODELS

(Concluded from Page 1, Column 4)

feet storage capacity with 378 cubes. These De Luxe models are made with embossed porcelain doors and base front. Porcelain is used inside and out, the body of the cabinet being in white, offset with a colored changeable top and in pastel shades. In these models wrapped corkboard is used for insulation, ranging up to four inches in thickness. Each model is provided with an electric light or lights operated by an outside switch and with a ruby indicator glass which glows when the light is turned on.

The De Luxe line with Seeger cabinets, is made in five sizes, six, eight, ten, fourteen and twenty cubic feet storage capacity. The first four are made with two doors, while the twenty is equipped with three, giving food storage space on either side of the condensing unit.

The new medium priced line, known as the Copeland CS, is made in three sizes of five, seven and nine cubic feet capacity. These are porcelain, inside and out. The bodies of the cabinets are finished in gray, while the tops, doors and louver panels are in a contrasting white. Satin nickel finish is used in the hardware. The frame is of heavy kiln-dried wood. Each model has one or more double depth trays for freezing desserts and a cold tray for crisping salads, storing ice cubes, etc.

The Copeland "N" line, as that covering the low-priced field is designated, is made in four models. Each model carries at least one deep tray for making desserts and a cold tray for crisping salads, etc. In this line the N-5 is the lowest priced. It has a capacity of more than five cubic feet food storage with a shelf space of more than 7½ square feet, and freezes 108 ice cubes, or 6.95 pounds at one freezing. The N-5 special is the same as the N-5 with the exception that the interior finish is of porcelain. The other two models are the N-5-P and the N-7-P with food storage capacity exceeding five and seven cubic feet. These latter two models have facings of bright metal (Super Ascaloy.)

An extensive water cooler business was indicated with the presentation of Copeland's line of coolers, presenting the Model P for bottled water supply and the Models L and M with sanitary bubbler for city water supplies. The Model P has a reserve capacity of more than four gallons and a cooling capacity of 100 average drinks per hour. Its overall height with bottle is 64 inches and it is equipped to take the standard five-gallon bottle. The hardware is of

chromium nickel, tarnish-proof and requiring no polishing. This model is intended to meet the demand for a small cooler for private and individual office use and is finished in various colors. The models L and M are for use either from bottles or for direct connection to the city's water supply. The Model L has a single-cylinder condensing unit with a ¼-horsepower motor cooling 8½ gallons per hour, while Model M has a two-cylinder condensing unit with a 1/3-horsepower motor and cools 14 gallons per hour.

#### The new commercial line

In the commercial field a complete line of units for single or multiple installation in apartment houses as well as equipment for meat markets, groceries, restaurants, delicatessen stores, lunch rooms, clubs, hotels, soda fountains, bakeries, dairies and florists' shops was presented, as well as milk cooler units for dairy farms.

Notable among the commercial condensing units shown are the Model W-825, a two-cylinder water-cooled compressor with a ½-horsepower motor and a capacity of 825 pounds refrigeration every 24 hours, the X-1200, a two-cylinder, water-cooled compressor with a one-horsepower motor and a capacity of 1200 pounds refrigeration and the X-A-1200 of the same capacity and using a 1½-horsepower motor. This is an air-cooled unit.

Copeland's line of cooling units covers a field from the D-7 with a freezing capacity of 126 ice cubes, or 8.25 pounds, up to the D-40 freezing 432 ice cubes or 27.8 pounds at one freezing.

With the facilities offered by the use of the Players' Club opportunity was given for dramatization of selling methods. One interesting demonstration was given illustrating the telephone canvass as worked out by the Copeland St. Louis Company, headed by W. L. Niekamp. A special setting was laid out for this with three girls from the Campbell-Ewald Company acting out the parts of telephone canvassers and woman prospect. This system, it was explained, resulted in 2339 telephone calls in six weeks' time with 400 good prospects and 438 more ready for calling upon in the Spring. Under this system, a salesman may confine his efforts to one particular locality with information supplied him by the canvass.

C. W. Hadden of the executive staff outlined Copeland's plans for 1929 and described the general duties of the entire Copeland organization.

Copeland's extensive advertising program for the year was explained by A. M. Taylor, director of advertising and sales promotion. This will include a liberal use of outdoor advertising as well as much national magazine and trade paper space.

Copeland's commercial line was explained by Henri Brysselbout of the

commercial engineering department, while D. B. Henry talked on commercial selling. E. N. Pattison outlined an extensive selling plan for the Copeland water cooler line.

E. N. Barger, in charge of service, revealed a new plan for service instruction and help to distributors under which a representative of the service department will contact each distributor in the entire country at least once a year, and probably three or four times a year. The service department, Mr. Barger stated, is to be considerably enlarged with men in the field continually to conduct service schools and generally to keep Copeland's service up to the very highest degree of efficiency.

Glenn Muffy, chief engineer, described what Copeland had done to improve on engineering development.

Leslie Arnett, sales manager of the Stanley Knight Co., Chicago, Mr. Bracken of the Celotex Co., and Mr. Rahn of the Commercial Credit Co., Chicago, gave short talks on the work of their companies. Walter Seeger, vice president of the Seeger Refrigerator Co., spoke on the Seeger line of refrigerators and of the close co-operation between his company and the Copeland company.

On Wednesday afternoon the visitors were taken for a trip through the Copeland plant, viewing for the first time the enlarged plant, including the building taken over last summer, which doubled the manufacturing space. The trip to the factory was made in special motor busses provided by the company.

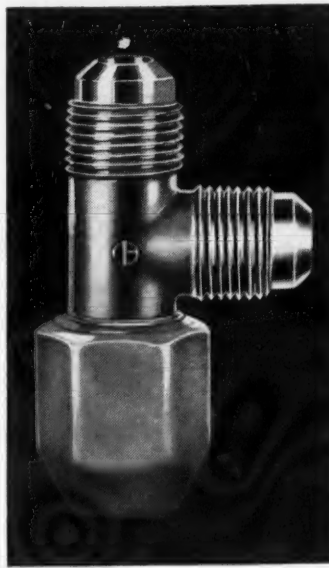
#### National contest fund raised

Events at the banquet at the Statler Hotel, which concluded the sessions on Wednesday night, showed a high enthusiasm. As a result a fund of several thousand dollars was raised to finance a nation-wide sales contest. It all happened in this way. A year ago Edgar D. McKean of the McKean Company, Pittsburgh, made a bet of \$100 with Arthur L. Sullivan, of Beaudette & Graham, Boston, that Pittsburgh would beat Boston in sales for the year. Boston, however, nosed out Pittsburgh and McKean paid up at the banquet. Then Sullivan put \$100 with it and offered the \$200 as a nucleus for a big fund to promote a selling contest. Money poured in until a pot of several thousand dollars was raised and a committee appointed to arrange the contest.

William Robert Wilson, chairman of the board, who donated \$400 personally, praised the spirit of the organization in a brief address at the banquet. F. M. Cockrell, publisher of ELECTRIC REFRIGERATION NEWS, made a short address in which he predicted that 1929 will be a great electric refrigeration year.

C. W. Hadden, who presided, turned the gavel over to W. D. McElhinney just before the conclusion of the festivities.

(See Registration List on Page 18)



Any combination of tube-ends and pipe thread-ends can be furnished. All standard sizes, and many "specials," in stock for immediate shipment.

Catalog R-30 mailed upon request.

## Forged for Strength!

Commonwealth refrigeration fittings are made exclusively from brass forgings and brass rod. The extremely compact grain structure and great tensile strength thus obtained, together with accurately machined threads and seats, insure a tight, seep-proof joint for the life of the installation.

Eighteen years of experience, unusual plant facilities, and a reputation for products of more than usual accuracy—these are Commonwealth's qualifications!

**Inquiries Will Receive Prompt Attention**

Commonwealth Brass Corporation

5781-5835 Commonwealth Ave.

Detroit

# COMMONWEALTH FITTINGS BRASS

## A Promise Fulfilled

*A Norge franchise becomes more valuable, due to the development of new, outstanding models*

**E**ARLY in the year Norge promised distributors an opportunity to make added money.

The first announcement is the new, small family, low-priced model and is just one of the big steps toward the fulfillment of this promise. The new model No. 300, along with the rest of the Norge line, gives distributors full command of the domestic refrigeration market. Apartment buildings, homes of every size, are handled easily and profitably with the Norge line.

Sales policies are liberal. Advertising co-operation is almost unlimited.

Write or wire for information and literature. Some valuable territory still available.

### Norge Refrigerators are Built by Experienced Workmen

Norge Electric Refrigerators are produced by men who have been doing precision work for a great number of years. The same men who make the Norge also make precision transmission gears used for some of the leading makes of automobiles, including Stutz, Hupmobile, Peerless, Auburn, Franklin and Ford.

Thus, it is easily seen why the Norge Refrigerator, when produced by men who have been doing precision work for more than eighteen years, can justly lay claim to being a distinctively quality product.

**Norge Corporation**  
Silent, Economical, Refrigeration  
670 E. Woodbridge St., Detroit, Mich.

## Kelvinator Representatives From Six States Attend Detroit Regional Meeting



Kelvinator distributors and dealers from Michigan, Ohio, Indiana, West Virginia, western Pennsylvania and western New York attended the Detroit regional meeting on Feb. 8. This meeting was one of a series of twenty-one which are being held throughout the country during the month of February. The photograph above shows the Kelvinator men at the banquet which was held at the Book Cadillac Hotel.

## KELVINATOR HOLDS REGIONAL MEETING

(Concluded from page 1, column 5)

has bank credit and resources to draw upon, and I sincerely trust and honestly believe that this year will be the greatest in the history of the company. There is absolutely no reason why we cannot do an outstanding job with practically everything at our command.

"I was asked the other day if I could express my feeling toward Kelvinator in one word. I said that I could not express it in one word but would put it in two—*Proven Dependability*. The product we are turning out today is a greatly improved piece of mechanism. The product we turn out in thirty days from now will be even better, and what we turn out in six months will be still better.

"I cannot express to you how pleased I am, how proud I am of this Kelvinator organization. I regard it as the finest name in this industry. It is a pleasure to be associated with you."

J. S. Sayre, domestic sales manager and chairman of the convention, next introduced J. A. Corcoran, director of advertising and sales promotion, who outlined the refrigeration market, illustrating his talk with pictures and giving an analysis of potential sales opportunities open to Kelvinator dealers.

Introducing G. V. Pollar, chief inspector, and G. A. Vis, superintendent of production, Mr. Sayre next gave the convention an insight into Kelvinator's new production and manufacturing methods. T. O. Slade, head of Kelvinator's utility department, next reviewed the history of electric refrigeration as it has been accepted by the utility companies.

E. A. Seibert, director of service, stressed the importance of making the service department a real part of the business and operating it on a systematic plan. He also brought out certain points in regard to the operation of a service department that have been proved essential considerations.

### Motion pictures show building of Leonard refrigerators

The construction of refrigerators in the Leonard refrigerator plant at Grand Rapids was described and illustrated with motion pictures by Earle Lines, advertising manager of that organization.

The final touch in the morning session was the unveiling of the 1929 line of Kelvinator domestic refrigerators and new quiet condensing units. Rounds of applause from the dealers and distributors evidenced their approval of the new models. New hardware, additional ice

cube capacities are among the features of the new line.

Following the close of the morning session the group was served luncheon in the Kelvinator cafeteria and afterwards parties were conducted through the factory to observe operations about which they were told during the morning session.

The afternoon meeting was opened by C. A. Armstrong of the Refrigeration Discount Corporation, Detroit, who told of the assistance which this organization is prepared to give Kelvinator dealers and distributors in financing their time sales.

Following the talk by Mr. Armstrong, Mr. Sayre called upon Messrs. Foersterling, Oliphant, Berry and Markland, Kelvinator field salesmen, who were introduced to the visiting dealers and distributors. Howard Dakin, field supervisor for the western territory; Lyle Huntton, field supervisor for the eastern territory, and Vance Woodcox, responsible for the new Kelvinator sales portfolio, were next introduced.

### The new commercial line

The new Kelvinator commercial line was introduced by H. A. Sieck, vice president in charge of commercial sales, who stressed the greater flexibility of the 1929 line. The new Kelvinator equipment, though decreased in the number of units, has increased its range of applications. Six new condensing units were shown, giving a completely graduated coverage. Three new cooling units of the cross fin type were also announced.

Mr. Sieck stated that less than 5 per cent saturation is to be found at present in the commercial field. Considerable stress was also laid upon the market for ice cream cabinets.

Interesting information on Kelvinator's export operations was presented by R. A. Lundquist. Mr. Lundquist told of the organization of this department in May, 1928, and its procedure in opening up foreign outlets. He brought out the fact that American high pressure sales methods have not proven successful abroad although other methods are being used which are proving very effective.

H. K. Lyons, manager of the order distribution department, next spoke on "Serving the Dealer." Mr. Lyons' talk was followed by the announcement that Theo. F. MacManus, Inc., Detroit advertising agency, will handle Kelvinator advertising. J. A. Corcoran closed the afternoon meeting with an illustrated talk showing the many ways in which Kelvinator will be placed before the buying public in 1929.

The day's session was brought to a close with a banquet at the Book Cadillac Hotel. J. A. Corcoran was toastmaster at the banquet.

## J. E. Grainer Joins Porcelain Enamel & Mfg. Co. of Baltimore

John E. Grainer, formerly with the Ferro Enamel Supply Co., Cleveland, Ohio, recently became associated with the Porcelain Enamel & Mfg. Co., of Baltimore, Md.

## UNCANNY? Certainly Not!

TO the uninitiated the way in which Savage Mercury Ice Cream Cabinets continue to function day-after-day, month-after-month, year-in, year-out, is almost uncanny.

To the man who has been through the mill of commercial refrigeration it is as plain as "A B C."

He knows the fundamental weaknesses of the existing types. Experience (often bought at a dear price) has shown him that so long as there are valves and pistons to stick or leak, oil that can come in contact with the refrigerant, stuffing boxes and gaskets that can leak, belts that can break, there MUST BE CONSTANT SUPERVISION AND SERVICING.

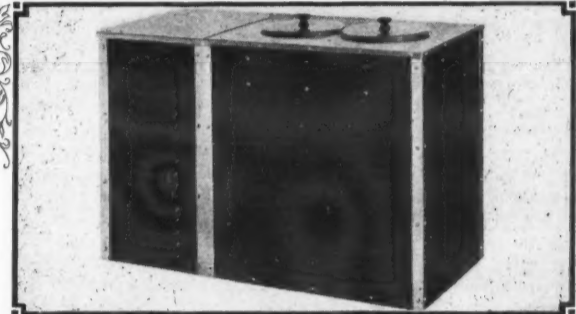
He knows, on the other hand, that in the Savage there ARE NO VALVES, pistons, or internal moving parts—no stuffing box, no belts, no lubricant within the system; that instead of the usual liquid brine, Savage has an exclusive jelly freezing mixture. He knows that when you remove the CAUSE you remove the effect. All this has SAVAGE done—and more!

You may not be so sophisticated. But whether you are refrigeration-wise or not, you should compare your service costs with those of Savage users. Enlist the co-operation of Savage engineers.

Distributed by

SAVAGE PRODUCTS DISTRIBUTING CORP., UTICA, N. Y.

COMPARE YOUR SERVICE COSTS WITH THOSE OF SAVAGE USERS



Licensed under J.G. DeRemer Patents

ONE OF THE PRODUCTS OF SAVAGE ARMS CORPORATION NEW YORK

# Building Consumer Demand with Color Advertising

in GOOD HOUSEKEEPING and THE SATURDAY EVENING POST



Please note that every Monel Metal advertisement stresses the importance of the retailer in the general plan of distribution by suggesting that consumers go to their dealers' stores.

Five million families distributed over the prosperous sections of the country will see Monel Metal household equipment advertised every month during 1929. Millions of women are going to have their eyes open for the store handling Monel Metal equipment. You can cash in on this consumer interest by tying up to Monel Metal national advertising—by using counter cards, newspaper advertisements, etc., specially prepared for your use. Let us send you complete information about our cooperative plan. Write today!

The advertisement reproduced above will appear in color in the February 2nd issue of The Saturday Evening Post and March Good Housekeeping. While it features Monel Metal cabinet tops it will insure consumer acceptance for many different Monel Metal products including table tops, sinks, hardware, washing machines, domestic appliances and Monel Metal refrigerator trim.

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company, Inc. The name "Monel Metal" is a registered trade mark.

# MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC.



67 WALL STREET, NEW YORK, N. Y.

## To and From the Restaurant Owner

### Bigger Profits for Restaurants, Hotels and Clubs



Kelvinator Electric Refrigeration

New Library Restaurant 8215 Woodward Ave., Detroit			
TABLE NO.	GUESTS	CHECK	WAITER
1	2	\$1.50	John Doe
2	4	\$3.00	Jane Smith
3	2	\$1.00	Bob Johnson
4	3	\$2.50	Alice Brown
5	1	\$0.50	Charlie White
6	2	\$1.25	Diana Green
7	3	\$2.00	Frank Black
8	4	\$3.50	Grace Hall
9	2	\$1.75	Henry King
10	3	\$2.25	Ivy Lee
11	1	\$0.75	Jack Miller
12	2	\$1.50	Karen Wilson
13	3	\$2.75	Larry Young
14	4	\$4.00	Mary Adams
15	2	\$1.00	Ned Baker
16	3	\$2.50	Olivia Clark
17	1	\$0.50	Peter Evans
18	2	\$1.25	Quinn Foster
19	3	\$2.00	Rachel Gibson
20	4	\$3.50	Samuel Harris
21	2	\$1.75	Tina Ives
22	3	\$2.25	Ulysses Jones
23	1	\$0.75	Vera Kelly
24	2	\$1.50	Walter Lewis
25	3	\$2.75	Xavier Martin
26	4	\$4.00	Yvonne Nelson
27	2	\$1.00	Zoe Olsen
28	3	\$2.50	Adam Parker
29	1	\$0.50	Betty Quinn
30	2	\$1.25	Carl Reed
31	3	\$2.00	Dora Scott
32	4	\$3.50	Edward Taylor
33	2	\$1.75	Fred Vance
34	3	\$2.25	Gina Ward
35	1	\$0.75	Harold White
36	2	\$1.50	Ivy Young
37	3	\$2.75	Jack Ziegler
38	4	\$4.00	Karen Adams
39	2	\$1.00	Larry Baker
40	3	\$2.50	Mary Clark
41	1	\$0.50	Ned Evans
42	2	\$1.25	Olivia Foster
43	3	\$2.00	Peter Gibson
44	4	\$3.50	Quinn Harris
45	2	\$1.75	Rachel Ives
46	3	\$2.25	Samuel Jones
47	1	\$0.75	Tina Kelly
48	2	\$1.50	Ulysses Lewis
49	3	\$2.75	Vera Martin
50	4	\$4.00	Walter Nelson
51	2	\$1.00	Xavier Olsen
52	3	\$2.50	Yvonne Parker
53	1	\$0.50	Zoe Quinn
54	2	\$1.25	Adam Reed
55	3	\$2.00	Betty Scott
56	4	\$3.50	Carl Taylor
57	2	\$1.75	Dora Vance
58	3	\$2.25	Edward Ward
59	1	\$0.75	Fred White
60	2	\$1.50	Gina Young
61	3	\$2.75	Harold Ziegler
62	4	\$4.00	Ivy Adams
63	2	\$1.00	Jack Baker
64	3	\$2.50	Karen Clark
65	1	\$0.50	Larry Evans
66	2	\$1.25	Mary Foster
67	3	\$2.00	Ned Gibson
68	4	\$3.50	Olivia Harris
69	2	\$1.75	Peter Ives
70	3	\$2.25	Quinn Jones
71	1	\$0.75	Rachel Kelly
72	2	\$1.50	Samuel Lewis
73	3	\$2.75	Tina Martin
74	4	\$4.00	Ulysses Nelson
75	2	\$1.00	Vera Olsen
76	3	\$2.50	Walter Parker
77	1	\$0.50	Xavier Quinn
78	2	\$1.25	Yvonne Reed
79	3	\$2.00	Zoe Scott
80	4	\$3.50	Adam Taylor
81	2	\$1.75	Betty Vance
82	3	\$2.25	Carl Ward
83	1	\$0.75	Dora White
84	2	\$1.50	Edward Young
85	3	\$2.75	Fred Ziegler
86	4	\$4.00	Gina Adams
87	2	\$1.00	Harold Baker
88	3	\$2.50	Ivy Clark
89	1	\$0.50	Jack Evans
90	2	\$1.25	Karen Foster
91	3	\$2.00	Larry Gibson
92	4	\$3.50	Mary Harris
93	2	\$1.75	Ned Ives
94	3	\$2.25	Olivia Jones
95	1	\$0.75	Peter Kelly
96	2	\$1.50	Quinn Lewis
97	3	\$2.75	Rachel Martin
98	4	\$4.00	Samuel Nelson
99	2	\$1.00	Tina Olsen
100	3	\$2.50	Ulysses Parker

Two pieces from a Kelvinator direct mail campaign to restaurant owners

# Character of Modern Restaurant Business Places Heavy Demands On the Refrigeration Equipment

**Extreme Conditions Under Which Systems Must Operate Satisfactorily Necessitate Care in Specifying**

By Gerald S. Bataille, Director of Application  
Harry L. Hussman Refrigerator Co., St. Louis, Mo.

THERE is no greater field in commercial electric refrigeration than restaurants. This is due to the number of such emporiums, the great variety of refrigerated cabinets required in restaurants, and that these cabinets are invariably located in hot kitchens.

No type of business has quite the demand for refrigeration as that of our average restaurant. And the greater the demand there is for refrigeration, the greater the economy is in having electric refrigeration.

Restaurants require refrigeration 12 months in the year, as their kitchens (where the refrigerators are generally located), are quite as warm in the winter months as in the summer. This means a continuous demand for refrigeration, and furthermore gives the refrigeration salesman a real prospect to call on any 12 months of the year. It is a winter commercial business that should be greatly cultivated.

But aside from it being the greater division in commercial refrigeration, it is also the most exacting. Restaurant applications call for considerable skill and knowledge of the business. The very success of a restaurant depends greatly upon the quality of food preservation within the refrigerators.

Poor refrigeration has put many a restaurant out of business. And likewise it has made many a restaurant when it has been of high quality. Steaks, chops and various cuts of meat that can be well seasoned in a refrigerator before cooking, cause the meat to be unusually tender and tasty. Poor quality refrigeration makes meat tough and unedible. By "quality" of refrigeration is meant food preservation characteristics. After all, the final analysis of the best in refrigeration is food preservation.

## Types of restaurant coolers in common usage

The different types of refrigerators and cabinets used in restaurants are too numerous to mention. But among the most common are the following: short order, general storage, ice cream cabinet and floor cooler.

Short order boxes and floor coolers come in every conceivable shape, arrangement and construction. The general storage and ice cream cabinets are generally a little more to order.

The writer has been asked countless dozens of times if all of these restaurant cabinets can be hooked up on one machine. My candid opinion is that it never can be done as well as with at least two if not three machines.

Therefore, as stated in the fourth paragraph of this article, restaurant applications are the most difficult of all. Exact temperatures, careful food preservation, and a great variation in the types, demands and food contents of the cabinets involve careful consideration.

To supply the average large size restaurant with the exact refrigeration required to give the best possible results, calls for a considerable amount of equipment. While this is good business for the refrigeration salesman, it is also mighty good business for the restaurant proprietor, for he has nothing more precious than the good will of his daily patronage that he must safeguard with the best of foods.

Peak hour demands on restaurant cabinets vary quite a little. The greatest demand on the general storage box is approximately two hours before meal time. At that time the door is opened considerably, taking out supplies for the day's requirements. Peak hour demand for the short order box is at the commencement of meal time. The ice cream cabinet and floor cooler have less of a peak demand, but such demand as there is generally occurs toward the latter part of the meal time period.

## Peak hours double demands

During these "peak hours" the demand on refrigeration is often more than double that of normalcy. Because these peak hours do not occur at the same time of day a multiple hook-up on one machine is quite difficult.

Then the great variation in the construction of the cabinets adds to the difficulty. The general storage may be well insulated and constructed whereas the average short order box is of light construction and poor insulation. The small short order box that will only accommodate a small coil may require just as much refrigeration as the large well insulated general storage box, that has sufficient accommodation for several large coils.

The average floor cooler that sometimes ties in with a salad pan generally receives just enough refrigeration for chilling the milk and butter. A water coil is often run through the floor cooler

passing through or near the cooling chamber, thus supplying cool drinking water for restaurant table use. As no drastic temperatures are demanded for chilling the milk, butter and water, the floor cooler may be tied in multiple with the ice cream cabinet with a two temperature control, and reasonably satisfactory results are generally obtained.

If there is a salad pan application to take care of, one of the most difficult of all commercial applications is present. Usually a brine bath as cold as the ice cream cabinet bath may be used under the fruit, but at best it is not a perfect job.

The average salad pan construction does not lend itself very agreeably to electric refrigeration. It neither has the proper amount and kind of insulation, nor is it constructed to accommodate any type of a coil. The surface directly below the fruit dishes should be about 30 degrees. The writer would suggest that if a much colder temperature must be introduced directly below the salads and fruits, that same be kept about an inch or two from the coils and allow only the air to contact with the foodstuffs. This can be accomplished by putting a wire rack an inch or two higher than the coils and allow the salads and fruits to rest on the rack.

Considerable difficulty has been experienced in getting short order boxes down to proper temperature. This is due to several reasons. The coil compartment is generally much too small to get sufficient cooling surface in the refrigerator to properly handle the load. The construction of many short order boxes especially from an insulation standpoint is not sufficient to resist the intense heat of the average restaurant kitchen. And the usage factor, or in other words the number of times the doors are opened daily on the short order box exceeds any other type of refrigerator. Each time one of the short order doors are opened a great quantity of heat rushes in.

The only immediate answer to this situation is to either occupy one of the food compartments with another coil, or rebuild the entire bunker compartment using up part of the present food storage compartment to enlarge the room originally allotted for the coil. Sometimes the refrigerator has to be re-insulated. It is most important to see that all the doors on this short order box are absolutely tight. They should all be fitted with a good gasket, and the hardware should be in first class condition. These are things the refrigeration salesman should see to if he is to build up a reputation for himself of selling satisfactory installations.

## The general storage box

The general storage box is usually for the storage in bulk of all kinds of meats, vegetables, and foodstuffs requiring hold-over refrigeration. Quite often this storage box is located in the basement where it is much cooler. If this be the case, and if it is a well built box, it will require very little refrigeration in proportion to a poorly insulated box in a hot kitchen. The best of refrigeration and air circulation should be provided for this storage box, and an effort made to keep the compartment from being too dry. Vegetables particularly require moisture, and too dry an air will shrink meat, and make it hard and dry. The best of refrigeration is required for this box as it enables the chef to store foodstuffs over a longer length of time, which affords an economy in buying, and makes possible the seasoning of meat so that it will be tender and edible.

Little has been said of the restaurant water cooler. If a separate unit is used, it is difficult to state just which type is best. It largely depends upon the requirement. Direct cooling is very desirable for long hard continuous demands, and the brine type of cooling known as "indirect" cooling, builds up a large reserve for peak hour usage. The particular application would have to be determined to know which type of water cooling was more desirable. The writer does not like to see water coolers hooked up in multiple with other cabinets. It is often done and quite successfully too, but a great number of correction jobs have

come up where it has been necessary to change the water cooler over to a separate unit.

Water coolers are often tied in with the floor coolers or with the ice cream cabinets with a two temperature control valve.

It is the writer's opinion that we will soon come to vocational commercial salesmen. Certainly the restaurant division should have a man well trained in knowing that particular line of business from A to Z in order to properly handle the job. But in towns where the total number of commercial prospects are small the salesman should take into very careful consideration that the average kitchen refrigerator will require just about double the amount of refrigeration the same type box would require in a meat market. This is especially true when the box is located in a hot kitchen and where the usage on the box is up to standard restaurant demand.

Water cooled machines should be used in such places whenever possible. Water cooled machines will prove to be far more satisfactory to both the proprietor and the dealer. They will be more economical in their operation, give better refrigeration, and far less service difficulties.

Properly understanding the restaurant requirements in refrigeration there is no field that offers the opportunity of mutual benefit to the consumer and dealer, that this year round business does. The number of reasons why a dealer should cultivate the restaurant business, and the number of reasons why the restaurant should have electric refrigeration puts this branch of the industry at the head of commercial refrigeration for the coming year.

## Thank You, Mr. Lape

"Your last issue is quite a compliment to you and we desire that you know it is appreciated."—E. S. Lape, Sales Mgr., Refrigeration Division, Franklin Air Compressor Corp.

## HOLMES PRODUCTS MOVES N. Y. EXECUTIVE OFFICES

O. P. Palmer Appointed Purchaser To Succeed W. B. Flanagan

Effective Feb. 2, the executive offices of Holmes Products, Inc., were moved to new and larger quarters located in the recently completed Bartholomew Building at 205 East 42nd Street, New York City.

The leasing of larger space was necessitated by the expansion of the company's personnel in order to handle the volume of business planned for 1929. The factory is located at 120 Helen Street, Bridgeport, Conn.

Announcement is also made of the appointment of O. P. Palmer as purchasing agent. Prior to joining Holmes Products, Inc., Mr. Palmer was associated with the U. M. C. Co. and Pratt & Whitney and recently was general purchasing agent for the New Departure Co., Bristol, Conn.

## 10-Year Old Frick Machine Installed in New Cooler

The Crocker-Blueford Co., produce merchants of Norfolk, Va., have recently moved to a new location on Bank street. A Frick 6" x 6" twin cylinder full automatic refrigeration machine comprised part of the equipment moved. This is the tenth year of service for this machine.

A new Hill cooler was installed at the time of the move. P. C. Hartman, 516 Market street, Frick representative in Norfolk, made the installation.

## Parker Ice Machine Announces Removal of Two Offices

The Parker Ice Machine Co. announces the removal of its offices from 2035 East 38th St. to 2600 Santa Fe Ave., Los Angeles, Calif., and its El Centro office to 651 Main St.

## Racine Good Housekeeping Shop To Handle Servel

The Good Housekeeping Shop recently opened at 408 Sixth St., Racine, Wis., will handle Servel electric refrigerators. The shop is under the management of E. J. Bishop and W. B. Hess.

# Mineral Wool

**Low in Thermal Conductivity and Low in Cost**

The exceptionally low thermal conductivity of Mineral Wool (6.3 B.T.U.) as determined by the U. S. Bureau of Standards, stamp it as the ideal insulating material for

## Cold Storage Construction

It assures perfect insulation and maximum efficiency at a low cost.

Mineral Wool is entirely mineral, indestructible, vermin-proof and easy to apply.

Sample and descriptive folder upon request.

## U.S. MINERAL WOOL CO.

280 Madison Avenue, New York  
Western Connection: Columbia Mineral Wool Co., South Milwaukee, Wisconsin

# 400% increase in 1928!

The year just ended brought an increase in sales of more than 400% over previous year on SureCold Electrical Refrigerating equipment. Think what this means, not to the manufacturers, but to the distributors of SureColds.

Dealers know that profits in the refrigeration field are often problematical—the actual profit cannot be figured until the equipment has been in use over a period of time. Many have found, to their great disappointment, that the cost of servicing the equipment after it was sold has eaten up the profits.

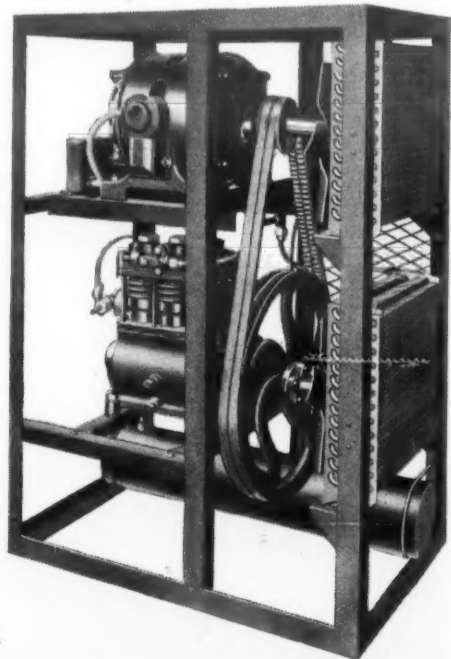
SureCold is the outstanding mechanical achievement of 30 years spent in the manufacture of fine machinery—the result of three decades of experience. Every effort has been made to make SureColds the finest refrigerating machine ever built—to make it as nearly everlasting as a machine can be—and to reduce servicing expense to the minimum.

The record of sales, and the experience of our distributors indicates that we have succeeded.

SureCold is available in both Domestic and Commercial compressors ranging in size from 1/6 to 5 h. p. and cooling coils for every service. Dealers interested in more profit should write at once for our sales proposition.

**Warner Steel Products Co.**  
Ottawa, Kansas

**SureCold**  
ELECTRIC REFRIGERATION  
17 Styles and Sizes of Domestic Cabinets



# For RESTAURANTS and Hotels

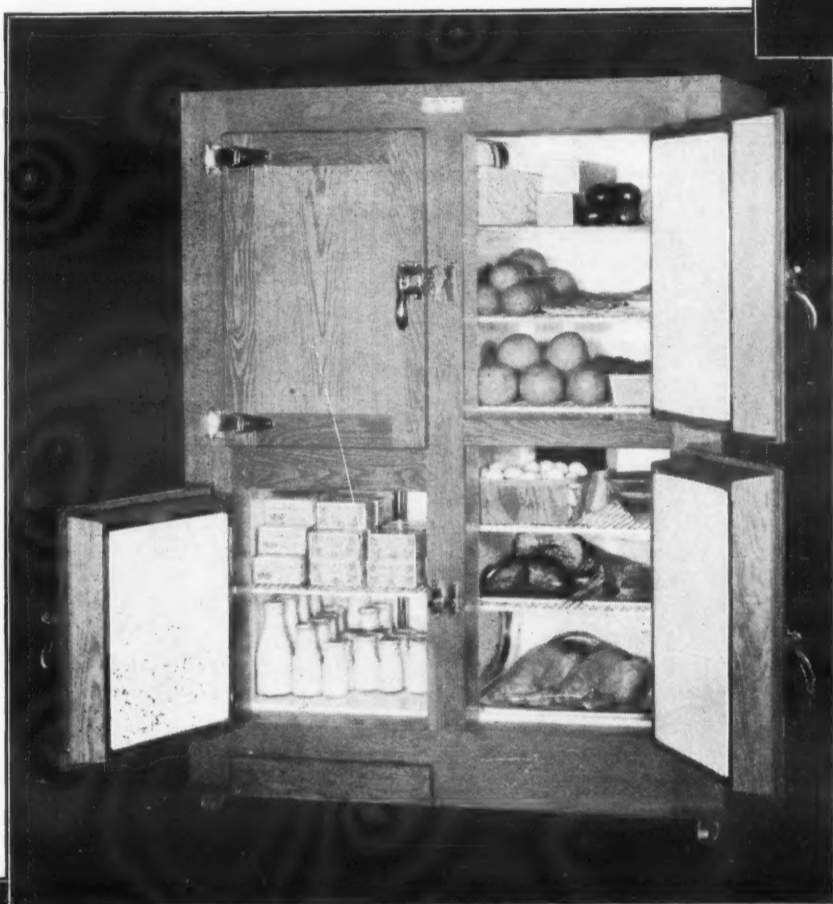
**M<sup>c</sup>CRAY**

***Now Offers  
These New Models***

**Porcelain  
Lined**

## **New McCray No. 375**

This new model is 4 feet 4½ inches wide, 2 feet 6 inches deep, 6 feet high. The cubic feet capacity is 30.5. The walls are 4 inches thick, insulated with 3 inches of pure corkboard, sealed with hydrolene. Shelf space, 24.73. Shipping weight, 1500.



## **New McCray No. 332**

Compartment at the right is equipped with shelves and hooks for meat. Walls are 4 inches thick, with 3 inches of pure corkboard, sealed with hydrolene. Porcelain interior. Exterior is of five-ply laminated Oak. Light Oak finish. This model is 7 feet wide, 2 feet 8 inches deep, 6 feet 2 inches high. Cubic feet capacity, 59.1. Shelf space, 38.7. Shipping weight, 1750.

**For Commercial  
Use**



## **New McCray Model No. 320**

This new McCray is 5 feet 9 inches wide, 2 feet 6 inches deep, 6 feet high. The cubic feet capacity is 41.5. The walls are 4 inches thick, insulated with 3 inches of pure corkboard, sealed with hydrolene. Shelf space, 36.35. Shipping weight, 1150.

**T**HE FINEST REFRIGERATORS for hotels, restaurants, hospitals and institutions in all McCray history are now presented in the new 300 line.

The interior is of gleaming white porcelain. The exterior is of five-ply laminated oak, with flush panels. Three inches of pure corkboard insulation, sealed with hydrolene, and two courses of waterproof paper, make a four-inch wall which keeps cold air in and warm air out.

Electric or mechanical refrigeration of any type may be installed immediately, without changes, in these refrigerators. Studs for hanging cooling unit conduits are provided in each model.

The outstanding superiority of the McCray in efficient operation is the result of quality in every hidden detail. Dealers in electric refrigeration of any type know that with McCray refrigerators the machine is assured of its most efficient and economical operation.

Write now for further information and catalogs, of interest to every dealer in machine refrigeration.

**MCCRAY REFRIGERATOR SALES CORPORATION, Dept. 66, Kendallville, Ind.**  
Salesrooms in All Principal Cities See Telephone Directory.

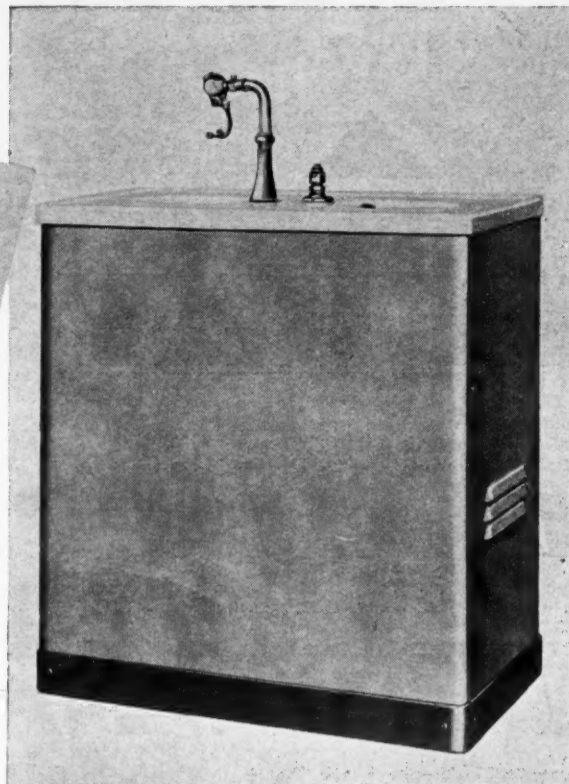
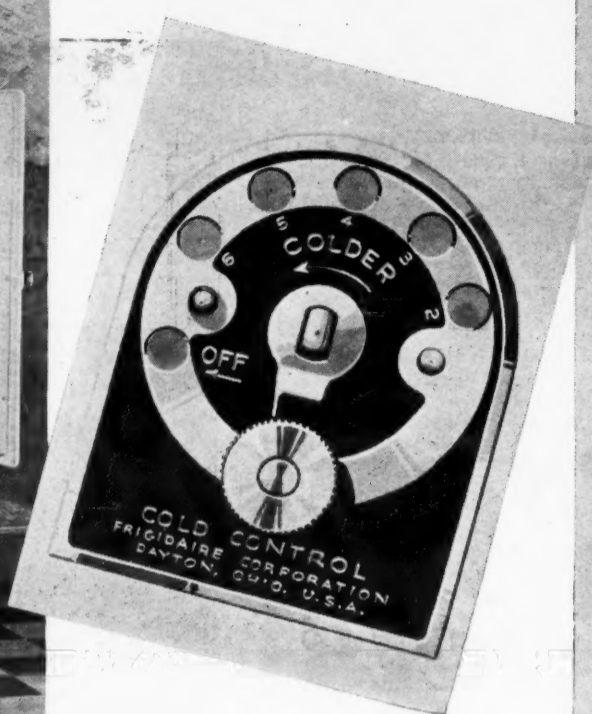
WORLD'S LARGEST MANUFACTURER OF REFRIGERATORS FOR ALL PURPOSES

# M<sup>c</sup>CRAY REFRIGERATORS

## New Developments by Frigidaire Corporation



This is the smallest model Frigidaire offers, having 4 cu. ft. capacity. It is shipped from the factory with the compressor installed, ready to plug into the electrical connection.



Center: The cold control is standard equipment on the new Frigidaire models. It makes possible six different temperatures in the cooling unit. Above: New model water cooler range in capacity from 3 to 18 gallons.

### Room Cooler Marks Entry of Small Machines Into New Field



Lester Keilholtz, Chief Engineer, Frigidaire Corp., with the latest Frigidaire product

### NEW MODELS SHOWN BY FRIGIDAIRE CORP.

(Concluded from page 1, column 3)

control is set in the proper place. Ice cream is held in good condition until wanted for use. By use of the device and the near-zero temperatures it affords, it is not necessary to add special ingredients to help congeal the mixture, according to results obtained in the Frigidaire experimental kitchens, where 110 new recipes based upon its use have been worked out. The cold control is now standard equipment upon all Frigidaire household units. Arrangements have been made to supply it as special equipment to hundreds of thousands of owners of earlier models.

The new household model sells at the lowest price in the history of the corporation. It is the smallest model that has been offered by this organization and is comparable in size with the average family ice box. It is equipped with the new cold control, quiet motor and other standard Frigidaire features.

The cabinet is 48 inches high and has a food storage compartment of approximately four cubic feet, with about eight square feet of shelf space. The exterior is duco with an interior of seamless porcelain enamel. It is equipped with a 1/6-horsepower motor, which uses low pressure control. The new model will be known as the D-4.

This new model, together with its larger companions in the line, the D-5 and D-6, will be shipped from the factories with the mechanical unit in place, in the bottom of the cabinet, completely assembled. To install these three models all that is necessary is to plug in the electrical connection.

Frigidaire Corporation also announces a two-temperature switch. With this device, one mechanical refrigerating unit connected with two refrigeration jobs can be made to provide any temperature required in either box.

The new water coolers are built in three sizes, ranging in capacity from three to eighteen gallons an hour. The line has been developed to meet the requirements of homes, private offices, shops and factories. The larger coolers will meet the needs of as many as 150 people, it is said. The office type coolers have a small compartment where food and bottled beverages may be stored.

A portable household model, mounted upon rubber tired wheels is also in production. It is designed for room service in hotels, hospital use in private rooms and similar purposes.

Officials of Frigidaire Corporation are now engaged in a convention swing about the country in which the new products mentioned are being shown to the field organization. At conventions already held in Atlanta, Memphis and Fort Worth they were enthusiastically received, according to reports.

### HAJOCA CORP. TO DISTRIBUTE ELECTROLUX IN PHILADELPHIA

Hajoca Corp., Philadelphia, Pa., has been appointed distributors for Electrolux gas refrigerators by Servel Sales, Inc. The Hajoca Corp., distributors of plumbing supplies and equipment, was formed by the merging of Haines, Jones

& Cadbury, the Keystone Co., and the Bridgman Co., in 1927, adopting the trade name of the first company as the name of the concern.

William A. Brecht is president of the corporation, and the refrigeration department at 1136 Ridge Ave., is under the management of James T. Young. A service and installation department has been installed at 120 S. Thirtieth St. Display rooms are to be opened soon through the distributing territory.

### Norge Factory Visited by Los Angeles and Chicago Representatives

Joseph Herzstam, president of the Norge Pacific Co., Los Angeles, Calif.; R. J. Mott, of the Norge Chicago Co., Chicago, Ill., and L. K. Schwartz, of the Norge California Co., Los Angeles, are visitors at the Norge Corporation plant in Detroit this week.

### C. F. Pease Opens Western Office

The C. F. Pease Co., Chicago, manufacturers of blue print machinery and papers, photographic arc lamps, and drafting room supplies, has established a Pacific coast sales office at 501 S. Spring St., Los Angeles, Calif., under the direction of Ralph S. Gibson.

### ASHEVILLE, N. C. DISTRIBUTOR REPORTS WINTER SALES GOOD

The Piedmont Refrigeration Co. has recently been organized at Asheville, N. C., and are distributors of General Electric refrigerators. The territory covered by this organization comprises twenty-six counties in western North Carolina. The personnel of the organization is: William Farr, Sr., president; William Farr, Jr., vice-president; E. L. Keith, treasurer; A. B. Moore, secretary; and G. E. Browne, general manager.

Sales are reported unusually good for the winter months and plans for a big business in 1929 have been laid and are being put into effect.

### Copeland Firms Publish House Organs for Employees

"Copeland Messenger" and "Price Tags" are the names of two new Copeland house organs that have recently made their appearance. The former is published by the Copeland St. Louis Co., St. Louis, Mo., and contains items of interest to the commercial and service departments as well as the office force, while the latter house magazine is published by the H. M. Price Hardware Co., Inc., Mobile, Ala.

### COMMERCIAL SALES EXPERIENCE RESULTS IN NEW TYPE COIL

Certain objections to electric refrigeration offered by grocery store and meat market operators of Florida to Lester J. Larkin, formerly state distributor for a well-known make of electric refrigerator, caused him to develop the Larkin Aluminum Plate Coil. These problems, known to all the salesmen of commercial refrigeration, namely the matter of dehydration and subsequent meat weight loss and the necessity of shutting down the condensing unit for defrosting have, it is claimed, been met in the Larkin coils.

In the matter of de-hydration, meat weight loss is usually the first objection advanced, but it was found that where de-hydration of contents took place that this applied to butter and cheese, as well as to vegetables. The Larkin coils, it is maintained, eliminate the factor of defrosting and it has been found that as a by-product of the elimination of these problems that the cost of operation of the refrigerating equipment is in many cases lessened from one-third to one-half.

### RECENT INSTALLATIONS

The Paul Gale-Greenwood Co., Norfolk, Va., will install eleven Kelvinators in the diet kitchens of the Norfolk Protestant Hospital.

C. H. Parker, of the Warren-Whaley Electrical Co., Norfolk, Va., has installed a Zero-Zone commercial unit and an eight-foot Dry Kold refrigerator case in J. Glassers Grocery Store, 1123 East Onley Road, Norfolk, Va.

Wagner has developed a complete line of motors to the exacting domestic refrigeration standard... single-phase, poly-phase, and direct current. Behind every Wagner small motor is the entire experience of one of the oldest electrical manufacturers in the country.

### Refrigeration Standard Small Motors



Use Wagner's 38 years of motor experience in solving your motor problems.

Literature on request

**WAGNER ELECTRIC CORPORATION**  
6400 Plymouth Avenue, St. Louis, U. S. A.

Wagner Sales Offices and Service Stations in 25 Principal Cities

Products: FANS....Desk, Wall and Ceiling  
TRANSFORMERS....Power, Distribution and Instrument....MOTORS....Single-phase, Polyphase and Direct Current

**Wagner**  
...quality

## OFFERS HOOK-UP FOR PROTECTING SYSTEMS USING A BRINE PUMP

Suggests Use of Automatic Cut-in Relay

NORTHWESTERN PUBLIC SERVICE COMPANY

Huron, South Dakota

January 29, 1929.

Electric Refrigeration News, Detroit, Michigan.

Most of our present day refrigerating plants that are large enough to require a circulating pump have no safety device to stop the compressor or keep it from running if the circulating pump should fail, or burn out, which could happen through several causes.

In most cases three-phase motors are used for both compressor and pump. The compressor runs automatically by pressure or temperature controls, whereas the circulating pump must run all the time unless you have made sure that by manual control the compressor cannot start. By making the automatic cut-in relay of the compressor depend upon the current required to run the circulating pump, this can be done by taking both leads on the load side of the circulating pump switch fuses for the control line feed. If this circulating pump switch has three fuses the one line which is not used in the automatic relay lines should be raised to the next higher size fuse so that if any one of the other two fuses blows the compressor and pump will stop. If a two-wire pump motor and switch is used the fuses should be of the smallest possible size, so that if any trouble occurs they will blow out and stop motors. By the use of this simple change in wiring, thousands of dollars in machinery and merchandise may be saved.

I would appreciate hearing from you.  
H. P. GREGGERSEN,  
Kelvinator Service Manager.

NOTE—The plan of H. P. Greggersen mentioned above in regard to stopping the compressor or keeping it from running should the circulating pump fail or burn out, by the use of a special arrangement of fuses is apparently all right, but it is not sufficient to take care of any other exigencies that might arise.

The Peerless Ice Machine Co., Chicago, Ill., has used a model "G" anti-freeze brine control valve, which according to its circular was designed to provide positive protection on brine circulating systems against freezing and breaking of brine-cooling tanks, shell and tube or double-pipe brine coolers, whether due to weakening of brine density by evaporation or dilution, closing of valves on mains, stoppage of circulation by clogged lines or brine strainer, lowering of "back pressure" on ice machine, or failure of pump from any cause. This valve also provides the same protection on water-cooling and circulating systems.

The manifold is mounted vertically on pump outlet in the discharge line. Pressure differential created by velocity of brine passing through special orifices in manifold actuates steel diaphragm which controls the making and breaking of electrical circuit in mercury tube. Liquid does not flow through valve, and results are secured solely by pressure differential on diaphragm. Electrical contacts are connected in series with remote control circuit of ice machine, which cannot operate unless brine is circulating.

This valve operating from liquid velocity and not from pressure, provides protection to brine cooling systems. With full automatic control the thermostat controls operation of the pump only, the liquid velocity starting and stopping the machine. In operation the machine will close down before complete stoppage of circulation is reached. This valve operates on both "open" and "closed" systems and is unaffected by changes in static head.—Editor.

## SAYS CERTAIN ADS SHOULD BE BARRED

Abspure Electric Refrigerator Co.,  
3337-39 Lindell Blvd.

St. Louis, Mo., Feb. 5, 1929.

Electric Refrigeration News,  
Detroit, Michigan.

In the current issue of your paper, on page 8, you give quite a lot of space to a salesman's letter, complaining about his competitors' tactics in selling refrigeration, and also devote much time to an editorial on this subject.

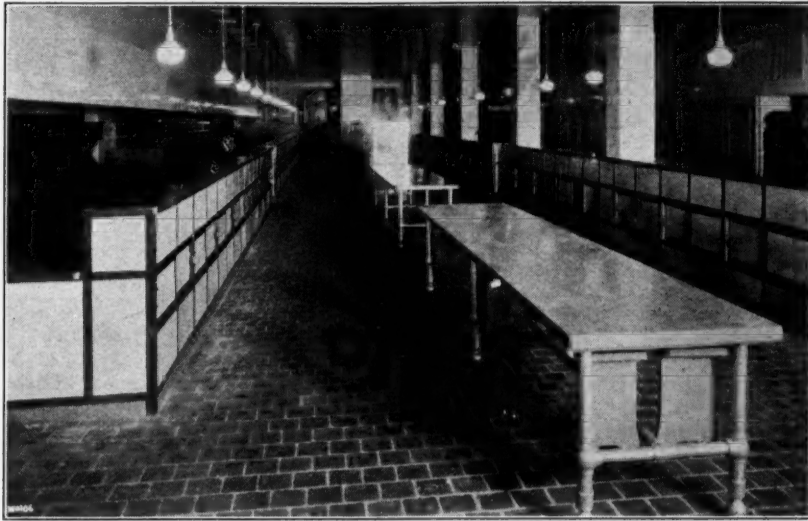
This sort of practice is going on universally. One company has a silent, noiseless machine, and another claims all kinds of advantages of one refrigerant over the one his competitor employs. I am sure that everyone connected with the industry appreciates this editorial on this subject, but at the same time, I wish to call your attention to the paid advertisement that you are running on page 7 of this very issue. I feel that advertisements like that should not be permitted if you are really sincere in what you say in your editorial.

ABSPORE ELECTRIC REFRIGERATOR CO.  
(Signed) Adolph Braun.

NOTE—While the NEWS believes that best results are secured from advertising which avoids any reference to competitive products, not all advertising men agree with this viewpoint. Some stoutly maintain that it is necessary to draw comparisons in order to bring out the features of a new device.

However, unless the advertiser violates certain well defined publishing rules, trade and industry papers usually allow the advertiser a rather wide latitude in presenting his story. Questions of the kind referred to can be handled best through a trade association rather than by publisher's censorship.—Editor.

## Prepared Orders in Small Refrigerated Compartments Speed Up Hotel Service



Above—Refrigerated Compartments; Below—Oyster Pantry.

The kitchen of Hotel St. Francis, San Francisco, contains a unique electrically-operated refrigeration system.

The pantry section extends for a distance of 140 feet along the west side of the kitchen, the walls for this distance being lined with small refrigerated compartments. These refrigerated compartments are arranged to take metal pans of such a size that they are all interchangeable. Prepared orders such as vegetable and fruit salads, cold meats, and ice cream are kept in these compartments. The waiters can obtain chilled plates from refrigerated compartments by opening a sliding door in the front of the compartments. The order shelf has a top of monel metal which is chilled, thus keeping plates set upon the shelf from absorbing heat. An interesting feature is the oyster pantry with its special refrigerated compartments and heavy marble slab 2½ inches thick. Special holes are provided in the slab through which the oyster shells are dropped into the garbage receptacles.

One large refrigerated room is devoted exclusively to pastry, milk, butter, and other materials used each day. This is so arranged that the operator may walk into the room and with a glance see the entire stock of material.



## WHY COMPARE THE OLD WITH THE NEW?

THE PHILADELPHIA ELECTRIC CO.  
Tenth and Chestnut Streets,  
Philadelphia, Pa.

January 28, 1929

Electric Refrigeration News,  
Detroit, Mich.

The photograph and article printed on page 7 of the Dec. 19 edition, which was supposed to show a comparison between and up-to-date apartment installation and an old style one, was brought to our attention by one of our salesmen.

It looked very much to us like a case of unfavorable comparison between ammonia and SO<sub>2</sub> installations, using as a basis, a real old type ammonia installation against a 1928, SO<sub>2</sub> installation.

It is to be expected that even an ammonia compressor may wear out in time and be replaced. However, the up-to-date one-unit ammonia installation is not usually replaced by eight or nine SO<sub>2</sub> compressors. It seems to be the other way here. Last week we replaced an installation of three SO<sub>2</sub> machines, one of which was 6 months old, and the other two, 2 years old, with an ammonia machine of less horsepower.

The point I want to make is that the prominent dissemination of such news hurts the commercial refrigeration business as a whole. SO<sub>2</sub> salesmen show such articles as closing sales arguments to prospective buyers.

Surely there is plenty of material of real educational value in this field which can be passed to the readers.

C. S. MORASH, Mgr.,  
Commercial Refrigeration Dept.

NOTE—We had no intention of suggesting that the change was made due to the superiority of one make over another. The fact that the model replaced was of ancient vintage would seem to offer ample justification for its removal in favor of a newer model. Our purpose in showing the pictures of new installations is to stimulate salesmen to see the opportunities for new business.

The NEWS is providing a real service by constantly bringing to dealers and their salesmen in all parts of the country a broad picture of what is going on in the industry. Please be assured that we have no desire to emphasize one make or design of machine as against another but that our whole aim is to show the real progress of the industry and give information which will be helpful to those who are doing the job.—Editor.

## Appoints Electrolux Dealer in Bridgeport, Conn.

The Atlantic Utilities Co., distributors for Electrolux gas refrigeration in Connecticut, Rhode Island and western Massachusetts, have announced the appointment of Allen Brothers, Inc., 239 Fairfield Avenue, Bridgeport, Conn., as retail representative in the territory for Electrolux.

**PROFITS FOR DEALERS**

are certain with the fast selling "Airtite" line. New models, new features, colors. A complete line of cabinets built for any standard mechanical unit. Send for booklet number 18 "Cabinet by Rhinelander" and complete information for dealers.

**RHINELANDER REFRIGERATOR CO.**  
Rhinelander, Wisconsin

**BUY COLD**

**AT THE LOWEST COST**

Accurate judgment of *lowest cost* is difficult. Too often *first cost* is the measure of value—and just as often, this yardstick is wrong.

Cost of operation—the cost of year after year service—is the true basis on which purchase should be made. The difference between the price of a good refrigerating machine and a poor one is soon overshadowed by the wide variation in daily operating cost.

"The bitterness of poor quality remains long after the sweetness of low price has been forgotten." It is because of that fact that the Lipman is built to do the job and not to sell at a price. And because the Lipman is so built, once sold, it remains sold, and the dealer retains for himself his original fair profit.

Does the customer pay a little more? He gets it back a hundred-fold in his "lower cost of ownership," making less depreciation, less service expense, and lower operating cost. Thus does the Lipman furnish *cold at lowest cost*.

**Lipman**  
ELECTRIC REFRIGERATION

GENERAL REFRIGERATION CO., Beloit, Wis.

[ ] SEND BOOKLET B-5.

Name..... Firm Name.....  
Address..... City and State.....

## ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

PUBLISHED EVERY TWO WEEKS BY

BUSINESS NEWS PUBLISHING CO.

550 Maccabees Building, Woodward Avenue and Putnam Street  
Detroit, Michigan. Telephones: Columbia 4243-4244

Subscription Rates:

United States and Possessions: \$2.00 per year; three years for \$5.00

All Other Countries: \$2.25 per year; two years for \$4.00

Advertising Rates on Request

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FEBRUARY 13, 1929

## Get Started Early

CAN the electric refrigeration industry sell three-quarters of a million units in 1929? That means a 50 per cent increase over last year—and 1928 was a good year. Approximately half a million units were sold. Business was better than ever before in this industry. Everyone is confident that 1929 sales will greatly exceed those of 1928. But how much will the increase be? Past advertising and educational work is bearing fruit. Electric refrigeration is popular. Everyone wants it. The selling job is easier and the size of the market is expanding all the time. The total volume should show an increase even with the same effort as last year.

With the industry better organized, increased production and distributing facilities, better trained sales and service crews, broadened market and more active demand, the normal increase may amount to 25 per cent. That much additional business will mean nice profits to manufacturer, distributor and dealer. But the real job is to get a 50 per cent increase. That extra 25 per cent will be the cream—the big profit business.

How can it be done? Here is the answer. Start your intensive selling campaigns two weeks earlier. Put on extra pressure during the peak season. Continue the effort two weeks longer. Such a program is definite and practicable. This idea has been applied in other industries with marked success. The extra layer of business on top of the normal seasonal peak will build up the year's total surprisingly.

To help promote this idea throughout the industry, Electric Refrigeration News will issue the 1929 "New Equipment Number" two weeks earlier than last year. It will appear March 13. In this issue the manufacturers will be given an opportunity to present their new products, new selling plans, new sales literature—everything that is new for 1929—in the editorial as well as the advertising columns.

Last year the "New Equipment Number" was the largest issue of the News published during 1928. It proved to be tremendously effective in awakening the industry to the new opportunities in the business. It provided a broad picture of the progress in design and production. It showed that the manufacturers were organized and ready to go. Compared with the previous year the manufacturers had definitely advanced their schedules.

It is now evident that the manufacturers have again moved forward. Some of the companies have already announced new lines and new features. (See news columns of this issue). Others will be ready to present interesting developments very shortly. No doubt, schedules will continue to be advanced in succeeding years until electric refrigeration is truly an all year round business.

Dealers and their salesmen will have great values to offer the public this year. There will be no difficulty in detecting the marked improvements and refinements in the product. Notable advances have been made in the design and construction of both machines and cabinets. A tendency toward standardization in sizes and parts is evident. Quietness of operation is an outstanding feature. Distributors and dealers who have had an opportunity to view the new lines have shown an enthusiasm which is inspiring. Unquestionably electric refrigeration sales will set a new high mark in 1929. We ask the question: Will it reach 750,000 units? Again we say, "Get started early!"

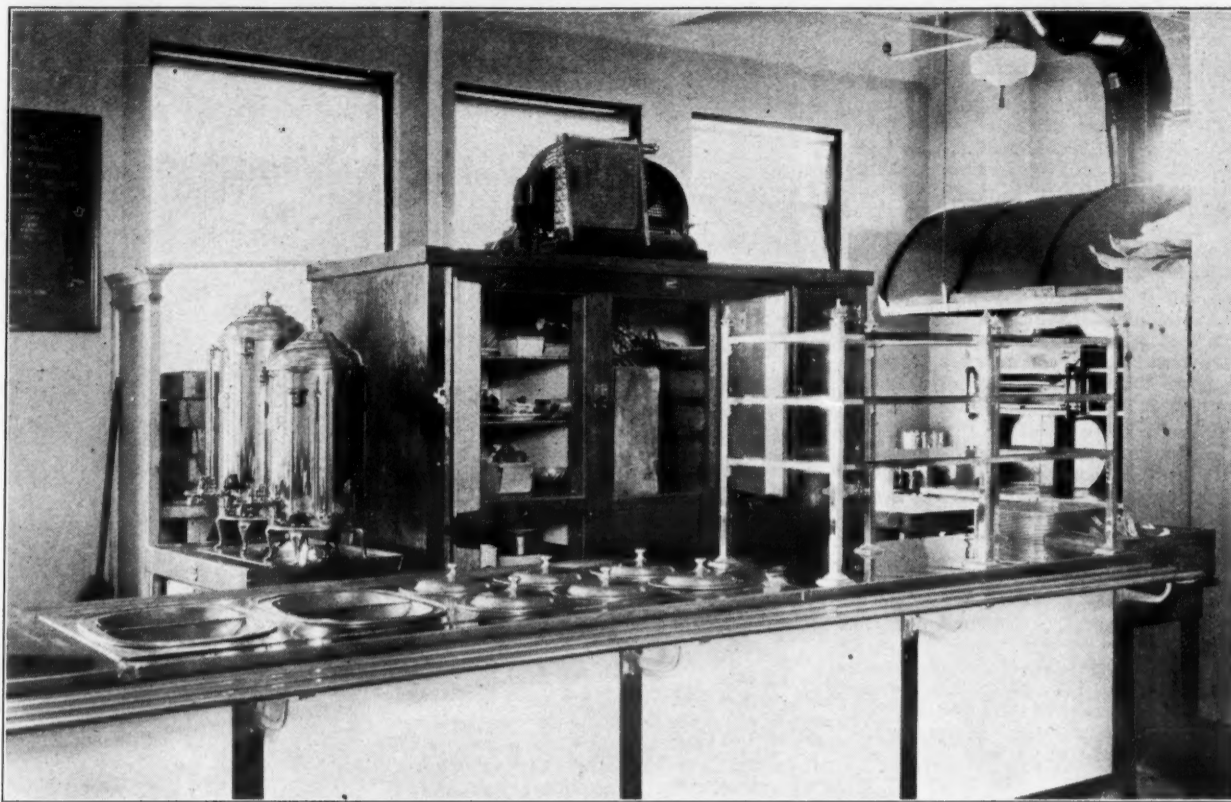
## Special Offer

LEADING manufacturers of electric refrigerators have co-operated with Electric Refrigeration News by making available their lists of distributors and dealers. Thus sample copies of the paper have been brought to the attention of practically every local sales outlet in the country. Many distributors and dealers have also sent in names of salesmen and other members of their local organization. The subscription list of the News has been built up largely by this process.

Readers frequently express the desire to assist in extending the circulation of the News, believing that it is providing a service of great value to everyone connected with the industry. Some have gone so far as to pay the cost of a full year's subscription for a number of employees or business associates.

To meet this demand the News is making a "Special \$5.00 Offer" as follows: Three subscriptions for one year, or six subscriptions for six months, or twelve subscriptions for three months. This rate applies to subscriptions in the United States only with remittance attached to the order. This offer is made especially to permit manufacturers and distributors to put the paper in the hands of new dealers for a limited period and at reasonable cost. Those who receive such a gift will appreciate it and will doubtless continue the subscription at the end of the period.

## Patrons Get View of Restaurant Refrigerating Equipment Installed in Prominent Position



The restaurant type refrigerator illustrated here with a Kelvinator condensing unit mounted on the top is in the Bonwit-Teller store in Philadelphia.

## J.B. CHURCHILL ASKS CONSIDERATION OF 5 POINTS ON NAT'L CODE

Commends Open Discussion of Problems in News

THE CHEMISTS' CLUB  
52 East 41st Street  
New York

February 5, 1929.

Electric Refrigeration News,  
Detroit, Michigan.

IT is with the keenest interest that I have read your editorial in the January 16th issue and the related article submitted by Mr. E. T. Williams and Mr. Hedlund's letter also appearing in this issue. The writer is in complete agreement with the views expressed by both of these gentlemen and also with your plan for a free and open discussion of the safety code situation by our industry.

Your expressed viewpoint of the attitude of the older engineers in the industry, it seems to me, does not exactly represent the true feeling which exists at the present time. It is true that as far as codes and regulations are concerned, a much greater conservatism has been expressed by the older men in the industry than has been shown by the "younger crowd of manufacturers and executives," but may it not be possible that this is merely the tendency of the older set to take more careful cognizance of the need for safety measures which long experience has taught them to be both necessary and justifiable; while on the other hand the younger set, lacking such experience, fails to realize the necessity of adopting measures that insure adequate safety.

An accident due to refrigerating equipment causing injury to life, limb or property is a reflection on the whole industry and not alone on the particular manufacturer of the defective or unsafe equipment. Consequently we should be vitally interested in providing measures that will insure safety in these newer types of installations.

Referring to the National Code (not the Underwriters Code which is being erroneously called the National Code) which has been under consideration by the sectional committee of the A. S. A. with the A. S. R. E. acting as a sponsor body; unlike other refrigeration codes, ordinances, or installation rules which may be drawn up by various organizations for the protection of special interests, the A. S. A. code must be broad enough to cover all phases relating to the provision of a full measure of safety to the public.

No more competent or representative body of men could have been found than that making up the personnel of this Safety Code committee, selected as they were from about thirty organizations representing every interest related to, or affected by this industry. After several years of intensive study, this committee approved the Code as it now stands, including the specific prohibition of direct refrigeration above the first floor for systems containing over twenty pounds of refrigerant. This approval was practically unanimous.

There is now a demand on the part of some manufacturers that this code be so amended or changed that the effect of the restrictions imposed by the classification based on the weight of refrigerant in the system be nullified and especially

the effect of paragraph 1304, which prohibits Class C Systems using direct refrigeration above the first floor.

May I call your attention to the following points in this regard:

(1) The classification of refrigerating systems on the basis of the weight of refrigerant contained as given by the A. S. A. and the New York City Codes was accomplished only after years of study and the most thorough discussion. The members of the committee mostly responsible for this classification had among them men whose experience was not confined to refrigeration alone, but are known as among the most competent and experienced engineers in the chemical field. They have been lenient in increasing the amounts allowed by each class over that thought wise in the older code.

(2) With no restrictions as to the number of such systems as might be installed, the amount of refrigerant placed in any building could be unlimited. As all refrigerants are dangerous to a degree and no absolutely safe one is known or likely to be discovered, full protection of the public can only be had by the limitation of the amount allowed in any dwelling.

(3) The present proposed code situation, adding the meagre restrictions of the Underwriters Code as to multiple installations, to the restrictions of the A. S. A. code, gives this fundamental inconsistency: that a relatively small confined unit containing, say, twenty-five pounds of refrigerant is placed under severe restrictions, whereas a multiple system containing, say, one hundred pounds of refrigerant would have no stringent restrictions imposed on it.

(4) The chemical and physical properties of all available refrigerants are well known as is their relative toxicity and fire hazard. The danger attendant on the use of any refrigerant now in general use, for refrigeration in dwellings, increases rapidly with the amount used and the degree to which it is spread throughout a building. I believe that any competent chemical engineer must truthfully say that the presence of quantities of any refrigerant above twenty pounds in a building used as sleeping quarters for human beings would constitute a serious hazard, unless placed in a machinery room so constructed that the escape of the refrigerant to the living and sleeping quarters of the building, in case of leakage, was impossible.

(5) If the code is to be altered to allow such direct multiple installations above the first floor, then all the engineering and chemical experience of the last fifty years counts for nothing. Certain manufacturers are urging that no regulations are needed in our industry and have predicted that there will be none. Our laws are not made in favor of, or drawn by those against whose depredations they are designed to protect. It would be equally unreasonable to allow the manufacturer to write his own safety code, which should not be designed for his protection, but for his regulation and control and fundamentally for the full protection of the public.

In closing, allow me to commend you on the stand taken by your paper for a free and open discussion of the safety problems connected with our industry. I hope that they may be solved by the friendly co-operation of all concerned with a strict regard for those scientific and engineering truths which, when the last word is said, must remain the foundation of any satisfactory or permanent code.

Yours very truly,  
(Signed) J. B. CHURCHILL.

## "OUTSIDER" WRITES ON VARIOUS TYPES OF MULTIPLE HOOK-UPS

Asks that Code Makers Use Care in Limiting

AMERICAN ICE MACHINE COMPANY  
117 North Maryland Avenue  
Glendale, California

January 29, 1929.

Electric Refrigeration News,  
Detroit, Mich.

In the same mail with the January 16 issue of Electric Refrigeration News containing your sane editorial titled "Safety Codes," there came also a letter from Postle and Postle, Architects and Engineers, in which we believe you will be interested. We enclose copy of this letter.

Is it not significant that the observations of an unprejudiced outsider should so nearly coincide with those of an "unprejudiced insider," if we may classify you as such? We refer only to the similarity of the views expressed regarding selfish attempts to have discriminating restrictions written into ordinances and other codes. Needless to say we respect your neutrality concerning the merits of the various proposed standards.

There can be no doubt of the great harm being done the industry by the present emphasis on supposed hazards, an emphasis which is supported by neither records or reason. It is refreshing to get the perspective of sensible outsiders who refuse to become excited by the calamitous predictions of certain manufacturers.

The views of such outsiders are particularly helpful at this time, if like those of Postle and Postle, they contain the nucleus for constructive safety program, following the general plan of safety standards in other mechanical systems used in multiple dwellings. It is not to be hoped, however, that city and state officials, architects, builders and laymen generally will be able to keep their heads when the supposed leaders of the industry are losing theirs.

In any event we believe you will be glad to publish Mr. Postle's clarifying letter.

Very truly yours,  
AMERICAN ICE MACHINE  
COMPANY.

By E. Z. Beldin.

The letter referred to by Mr. Beldin in the communication above, follows:

POSTLE and POSTLE  
Architects and Engineers  
437 South Hill Street  
Los Angeles, Calif.

January 24, 1929.

American Ice Machine Company,  
Glendale, Calif.

Dear Sirs:

Your letter of January 16 received, in which you request our opinion of the relative safety of three most common types of direct refrigerating systems in use for apartment or hotel buildings, namely:

(a) Central multiple system, in which all the cooling units throughout the building, regardless of number, are handled by one compressor unit.

(b) The multiple systems limited to a comparatively small number of cooling units operated on one compressor. Large buildings equipped

(Concluded on Page 11, Column 2)

## SELL REFRIGERATION NOT MACHINES LORCH TELLS N. E. L. A. MEET

Refrigeration Committee Met  
in New York, Dec. 28

Commercial refrigeration was discussed at the second meeting of the refrigeration committee of the Metropolitan New York section of the National Electric Light Association, which was held in New York City, December 28. Maurice Schwartz pointed out that the poor progress made in the sale of commercial refrigeration was due to the fact that its application was not being properly presented to the purchasing storekeeper, who is not familiar with the many factors to be considered in the production of the most efficient kind of refrigeration.

Paul Lorch, chairman of the committee, stated that if commercial salesmen would sell refrigeration instead of machines, this branch of the industry would be in a better condition. "A few years ago," he said, "high pressure methods were applied to the sale of commercial equipment by newly organized crews made up of men formerly affiliated with automobile sales organizations. These men, who were more or less mechanically inclined, found no difficulty in satisfactorily completing the technical and sales courses in refrigeration, and in a short space of two weeks were ready to accomplish in refrigeration, feats which the more conservative and considerably more experienced refrigeration experts would hesitate to attempt."

"Exaggerated promises of machine performance resulted in many sales, but it was not long before the storekeeper realized that possibly he might have been better off had he continued to use the old methods of refrigeration. In planning some of these faulty installations, it did not seem that any technical consideration was given to the many requirements essential to correct refrigeration. The average storekeeper with his limited capital did not feel inclined to be a party to experimental refrigeration research at his own expense."

"The commercial refrigeration salesman who prepares his estimate to meet a certain price, and who in doing so gropes around for the machine and equipment to serve a particular box, otherwise not suited to give the best results, is personally responsible, if prospective customers are prejudiced by the complaints of dissatisfied users."

T. J. Daly condemned the practice of salesmen featuring just the bare cost of the machine, and then, after interesting the prospect, bringing in the other items incident to a complete installation, such as removing bunkers, installing new baffles, repairing refrigeration doors and electric wiring. J. L. Skoggs, who is making a special study of this subject, remarked that the importance of small commercial refrigeration as a desirable load, required serious consideration of every member of the committee with a view of arriving at some plan of activity which would stimulate and promote the use of such equipment.

### JOHN N. WILLYS EXPORT CORP. WILL HANDLE NORGE EXPORTS

The John N. Willys Export Corp., Toledo, Ohio, is now handling the export distribution of the Norge electric refrigerating units. The company is appointing representatives and dealers in foreign territories. Only the machines without cabinets will be handled by the Willys company.

### But the Refrigerator Is More Convenient in the Home



The Southwestern Gas & Electric Co., General Electric refrigerator dealers in Texarkana, Tex., gave equal honors recently in a window display to the cow and a General Electric refrigerator as means of keeping milk fresh. The sign, "2 Ways to Keep Milk Fresh," had arrows at each end, one attached by a ribbon to the cow, the other to a General Electric refrigerator.

### FRIGID GALE CAUSES CRASH OF FRIGIDAIRE WINDOW

Frigid air is great stuff—in the ice boxes.

But not so good when Dame Nature distributes it free of charge at street corners, for she has her own refrigerator system.

Science provoked Nature's wrath Tuesday night, so the refrigerator system was set at 16 degrees below zero and a strong wind was put into action.

The sudden crashing of a plate glass window at 24 E. 4th St. startled passersby. A bit of glass was left intact. On it was the title "Frigidaire."

Now the employees of the sales branch of the Frigidaire Corp. are wearing overcoats while waiting for a new window.—St. Paul Dispatch.

### ARCHITECT SUPPORTS MULTIPLE SYSTEM

(Concluded from Page 10, Column 5)

with this type of installation would have several separate systems.

(c) Individual and complete self-contained unit for each cooling unit.

We have used all three of the above types of refrigeration and from experience believe all to be safe and practical. The matter of safety rests primarily upon mechanical quality and proper design to meet the conditions in hand, and no one system fulfills all safety requirements to the exclusion of all others.

Each type has its use, but the natural tendency in refrigeration of large buildings is one of centralization of all machinery, which, as in all other systems of mechanical service in buildings, means greater efficiency and simplicity. This point is illustrated in such systems as central heating plant, hot water systems, etc. In the case of refrigerating many details which may be a source of trouble and consequently effect to a certain degree the safety of the system. The following points are obvious in this respect.

- (a) The number of moving parts is greatly reduced.
- (b) The number of joints in the piping system is reduced.
- (c) The number of stuffing boxes, valves, etc., is reduced.

In addition, the central plant lends itself to the use of heavy ammonia type manifolds, which are far more substantial than the copper tubing in common use. A central plant permits central control in case of emergency and is more adaptable to the use of certain safety devices, such as emergency discharge, etc., if same are deemed necessary.

Line valves properly placed, as far as the element of safety is concerned, convert a central system into small individual systems, if such is desired.

The points concerning public safety involve the possibility of escape of refrigerant due to leaks, breakage of parts, etc., also, the possibility of fire or explosion of escaped refrigerant. In this respect the hazards are no greater than in many systems of other types of mechanical building service. Many of the refrigerants used are inflammable, or nearly so; in some cases the refrigerant is the reverse of this; in no event is any refrigerant now in use as likely to cause explosion as fuel and illuminating gas, nor is it any more dangerous to breathe. The disagreeable odor of most refrigerants is a decided factor of safety, as the presence of same, even in small quantities, may very quickly be detected. This is not true of illuminating gas.

In our opinion, there is no reason whatsoever preventing the safe use of refrigerant in most any quantity required for a large building in so far as general principle or type of system is concerned.

Most building codes at present cover only very briefly direct type of refrigerating systems, and changes and additions are now being brought to bear upon officials of building departments, by manufacturers of various types of refrigerating systems, in an attempt to have put into effect discriminating rules and ordinances. The arguments being set forth are based primarily upon public safety.

As architects it is our duty to support all laws and ordinances governing public safety, but we sincerely hope that new ordinances will not discriminate to the point of limiting the number of cooling units on one compressor or the quantity or weight of refrigerant in any one system. Such rules would not accomplish their intended purpose.

Mechanical design to meet conditions of pressure, strength and general quality, are the things to be controlled by law if safety is to be maintained.

Very truly yours,  
POSTLE and POSTLE.  
By George R. Postle.

### U. S. Laboratory Uses Three G. E. Units to Keep Serums and Cultures

The U. S. Hygienic Laboratory in Washington, D. C., has recently purchased its third PL-13 General Electric refrigerator. Last September the first one was bought, and two more were added during the month of January.

The refrigerators are used for storing serums, antigens, cultures, and culture media. Some of these must be kept at a temperature near the freezing point, while others must be kept at a temperature close to the freezing point, but must not be allowed to freeze.

## 15 YEARS' SERVICE Proves INSULITE'S DURABILITY

INSULITE has been a rigid insulation board standard in railway refrigerator cars for fifteen years. Even though subjected to moisture and constant strains with the operation of refrigerator cars, its durability and strength have proven equal to these severe service conditions and constant high insulating efficiency has been maintained. In this service the specifications are equally as exacting as those required for refrigerator cabinet insulation.

INSULITE remains free from odors or fungus growths even under the most drastic moisture conditions, and leading refrigeration engineers recognize it as the most efficient rigid insulating material. It is furnished "cut to size" in any thickness or dimension required for refrigerator use.

The great strength of INSULITE is being economically utilized by large cabinet manufacturers, as it makes possible a great reduction or entire elimination of the main framing ordinarily required to construct sturdy cabinets.

Samples and Technical Details Will  
Be Gladly Sent Upon Request

## INSULITE

the Wood-Fiber Insulating Board

### THE INSULITE COMPANY

Refrigerator Sales Office:  
737 Conway Bldg.,  
Chicago, Illinois

Home Office:  
Builder's Exchange,  
Minneapolis, Minn.

## Here is a Line of Cabinets that Meets Every Demand



When you standardize on

# Rex

You get the advantage not only of a wide range of sizes designed to meet special installation requirements . . . but a uniformity of quality that can be relied upon to give years of complete satisfaction in the hands of the housewife.

Your copy of the new leaflet illustrating and describing the complete 1929 Line is now ready for mailing. May we send it!

## REX MANUFACTURING Co.

CONNERSVILLE, INDIANA, U. S. A.

## ANALYZES MOVEMENT TOWARD CUT PRICES

A GENERAL tendency toward price reduction of advertised goods is noted in an article by J. George Frederick in the January 23 issue of *Advertising and Selling*. Startling cuts in prices of silk hosiery announced recently by the prominent manufacturers, lower prices of automobiles, reductions in the washing machine industry, recent lower price announcement by Frigidaire, reduced long distance telephone rates and other examples are given to support the generalization that price reduction had become a "movement."

"Is this price reducing tendency sound and healthy or does it make the year 1929 look rather dark?" asks the author.

"Not for the well-balanced national advertiser who has analyzed his market soundly and keeps abreast of the times. It is now a fixed and definite principle of the new American economics to reduce price to the consumer. It is a part of the new 'industrial peace' plan to raise wages and reduce prices in order to create a 'happy circle' of increased consumer purchasing power leading to greater prosperity, instead of the 'vicious circle' of increased price and lowered wages leading to depression. But—it demands a high degree of management, skill and alertness, educational advertising, co-operative effort to reduce waste, and large-scale operation."

"What about the smaller concern? If it does not wish to consolidate; if it cannot possibly compete on a price basis, what is the way out? The answer is, to make a very particular bid for individuality, quality or service that will offset its competitive differential in price. After all, the smaller manufacturer is in no different position from the independent retailer who has faced chain store, department store and mail order competition. He survives—even sometimes thrives—because of his ability to stress the more individualized note, and the note of more personalized service. The large manufacturer, like the large retailer, suffers from the defects of his size; and precisely as the large retailers have failed to dislodge the specialized small stores, so the large manufacturer will fail to dislodge the specialized small manufacturer. The public has shown that it is willing to pay a higher price for more value; but at the same time it has also shown that it likes the standardized, mass-produced, low-priced article in some fields. These two tendencies are not at all contradictory; there is evidently a place for both. They even play into each other's hands. The millionaire with a custom-built, special automobile often also owns a Ford or a Chevrolet. The cheapness of the lower priced car encourages a man of moderate wealth to own also a higher priced car, and vice versa. The same woman who buys the mass-produced, low priced Campbell's Soups may also buy high priced foods. The business man who buys low-priced mass-produced steel filing cabinets for his outer offices may buy very elaborate high-priced artistic files for his inner sanctum."

## STANLEY KNIGHT LINE FEATURES ATTRACTIVE COLORS IN EQUIPMENT

Attractive colors in soda fountains and counters are presented in the new line offered by the Stanley Knight Co., Chicago, Ill., manufacturers of soda fountains and accessories. Catalog No. 29, an elaborate presentation, just released, contains photographs of Spanish mission tile counters, in both glazed and unglazed textures, which offer rich color blending. Marble counters trimmed in colors are also shown with this line.

Diagrams of several models show the arrangement of coils for compressors using ammonia, methyl-chloride or sulphur dioxide as the refrigerant. A large diagram explains the accelerator system of circulating brine through the compartments of the soda fountain where the brine system is used.

A number of factory views are included in the catalog and construction features of the equipment are briefly discussed.

## Electro-Kold Makes Appointments for San Francisco and Yakima

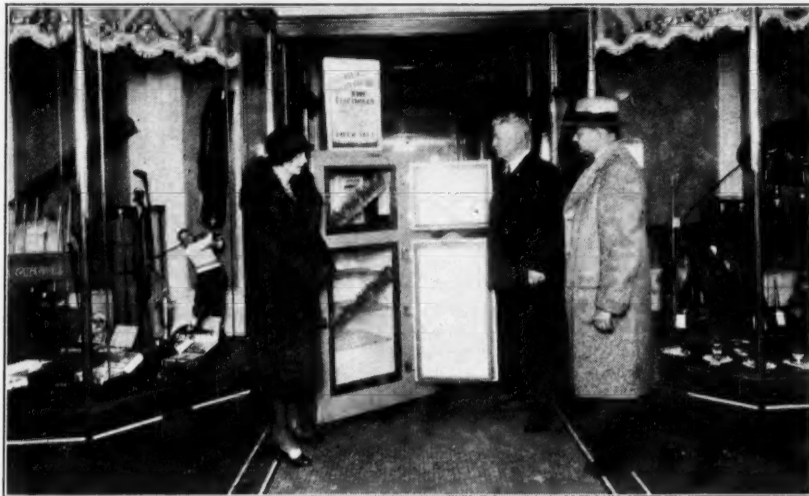
The Electro-Kold Sales Corp. of Los Angeles, Calif., has been formed to take over Electro-Kold sales for the metropolitan district of Los Angeles. Officers of the new firm are R. A. Floodberg, president, Carl Gross and George Meredith, general and sales manager. The display rooms of the new concern are located at 146 South La Brea St.

The Smith Furniture Co. of Yakima, Wash., has been appointed Electro-Kold distributor for the Yakima Valley district.

## "Norge Rotor" Makes Its Bow

"Norge Rotor" is the title of the new official house organ of the Norge Corporation, Detroit, which recently made its appearance. It has been created in the interests of Norge distributors and dealers and its columns carry items of interest to them.

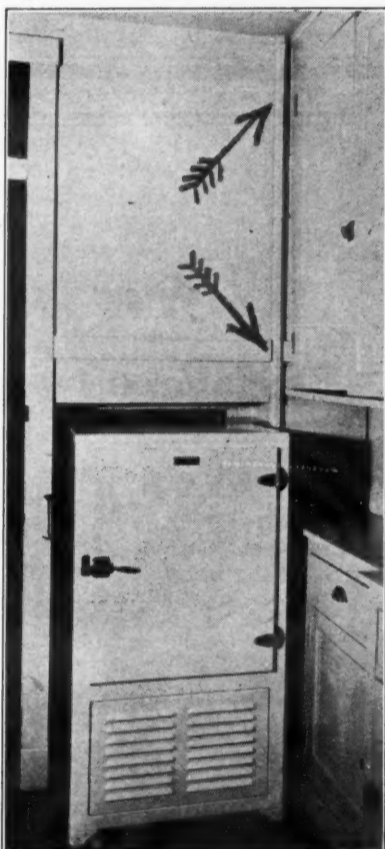
## Outside Display Makes Inspection by Passers-by Easy



Piper & Taft's Store, Seattle, Wash., displays an Electrolux refrigerator in the arcade leading into the building and store. The refrigerator is kept in operation in the open and the passers-by have ample opportunity to examine it more minutely than can be done in the window display. Everyone entering the store or building must pass the refrigerator. The lights in the arcade are on until midnight.

Shown in the picture are two of the salesmen of the company, E. S. Norman and M. J. Potter.

## METAL CONDUIT CARRIES TUBING FROM FLOOR TO FLOOR IN ZEROZONE JOB



Wiremold conduit, made by the Wiremold Co., Hartford, Conn., was used to enclose copper tubing in an installation made by the Iron Mountain Co., Chicago, in a thirty-six apartment building at 44th St., and Drexel Blvd. Arrows in the cut above indicate the conduit running from floor to floor.

## NORFOLK COLD STORAGE CO. SIGN CONTRACT FOR NEW 6-STORY BUILDING

Contract for the erection of a six-story building has been let by the Jones Cold Storage & Terminal Corp., of Norfolk, Va. The new location will be 1215 East Main St. Arthur P. Jones is president of the company.

The cost of the building, which is scheduled to be completed early in the summer, is estimated to be approximately \$150,000.

The York Ice Machine Co., York, Pa., will furnish the refrigerating machinery; United Cork Co., New York, will furnish the insulation, and the Chas. A. Moore Co., Minneapolis, will install the ventilating systems.

## Rex Cole to Install 353 G. E. Units for New York Concern

Rex Cole, Inc., distributor for General Electric refrigerators in New York, recently closed an order with the Tishman organization, in New York City, to equip each suite in six large buildings they are constructing in New York City with a General Electric refrigerator. This order covers the entire 1929 building program of this organization.

In this installation, 129, four cu. ft. refrigerators; 148, five and half cu. ft.; 19, ten cu. ft., and 18, thirteen cu. ft. refrigerators will be used, making a total of 353 General Electric units at an approximate value of \$112,000.

## Sell 12 Copeland Units in Town With Population of 75 People

The M. H. Moise Co., Lexington, Ky., Copeland distributors for Kentucky and southern Indiana, reports that Riley Brothers Garage, Wheatley, Ky., sold twelve Copeland electric refrigerators last summer in Wheatley, a tiny mountain town with a population of about 75 people.

# Wayne

## Electric Refrigerator

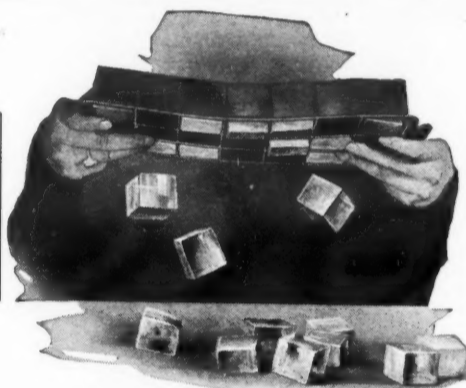


Up through the Electric Refrigeration Industry, in ever increasing volume, comes the Wayne.....the Electrical Refrigerator that combines faultless construction with rare beauty.

The steady growth, unusual production facilities and Wayne's outstanding performance.....make Wayne's Dealer Franchise invaluable.....and profitable! Let us tell you about our proposition on both Electric Refrigerator.....and Oil Burner.....in detail.

**WAYNE HOME EQUIPMENT CO.**  
Main Office and Factory, Fort Wayne, Ind.

? Why glue ice cubes to metal



? Why glue ice cubes to metal

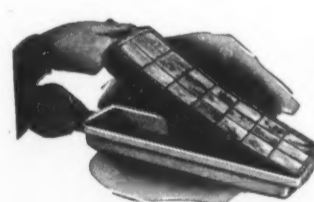
With the Improved

**FLEXO TRAY**  
Better ICE CUBES Easier

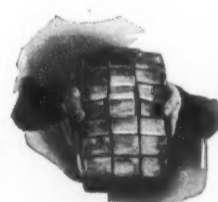
It Is No Longer Necessary!

Molded in one piece, from pure crepe rubber, 1/16 inch walls, amber colored, translucent, tough, durable, and efficient, these beautiful trays replace the metal grids in your own metal pans. FLEXOTRAY will not freeze to the metal pan. Ice cubes will not freeze to FLEXOTRAY.

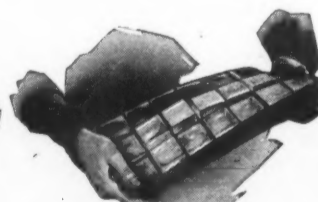
**FIVE SECONDS TO REMOVE ONE CUBE!  
REMOVE ALL THE CUBES IN FIFTEEN SECONDS!  
NO FAUCET MELTING REQUIRED!**



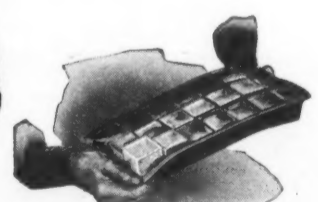
Pull Straight up



"Break!"



or Twist!



Press one out!

Every user wants it on sight—at a profit to you! A wonderful sales promotional tool—which puts the salesman into the user's home—and pays for the call! And how it helps to pay servicemen's overhead!

For the details of this most interesting story address

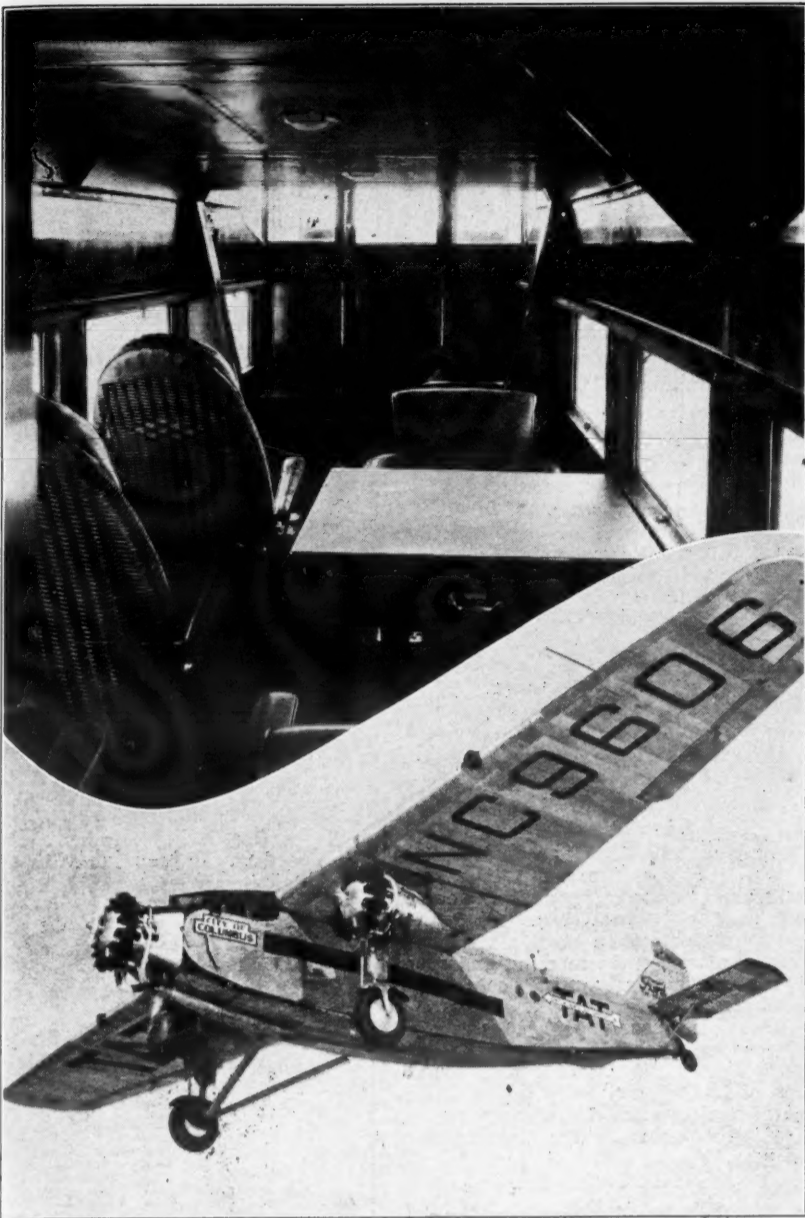
**G. M. Dwelley, Inc.**

235 Curtis Bldg., Detroit, Mich.

User Convenience Means Factory Equipment

The Coming Standard of the Industry

## Lindbergh's Flying Office Carries A Dry Ice Refrigerator



Interior and exterior views of the big tri-motored Ford plane

An iceless refrigerator is part of the equipment of the tri-motor all-metal plane which has been converted into a flying office for Col. Charles A. Lindbergh and Maj. Thomas G. Lanphier, by the Transcontinental Air Transport Co. The refrigerator, which is seen as the small compartment in the left front of the interior view, used carbon dioxide ice and was made specially by the Ford Motor Co. The plane was built by the Stout

Metal Airplane division of the Ford Motor Co.

It is fitted with desks, chairs, files, equipment for a stenographer, sleeping quarters, and the refrigerator. The aluminum walls are grained to resemble walnut and trimmed with friezes symbolizing the progress of aviation.

Col. Lindbergh used the ship in inspection of the New York-Los Angeles transcontinental line.

## CONNELLY STORES REMODEL TO FACILITATE BETTER DISPLAY

The Connelly Stores at Billings and Butte are being redecorated and rearranged to provide larger and more attractive display facilities. Arched recesses are being cut into the walls. Colored spot lights, new floor coverings, new furniture and hangings, and display equipment are being installed.

Glenn Connelly, George Mudd, and Kenneth Armitage, salesmen of the Connelly Co. Retail Stores, Billings and Butte, Mont., attended the General Electric Product School held recently at the Fort Wayne factory. They also visited in Cleveland, where they were joined by F. B. and F. G. Connelly.

## 200 ATTEND WASHINGTON FRIGIDAIRE DISTRICT MEETING

Two hundred Frigidaire dealers and salesmen of western Washington attended the district convention held in Seattle. Guests of honor at the banquet held in connection with the meeting were C. F. Rowe and E. N. James, officials of Frigidaire Corp., Dayton.

Speakers at the banquet included E. D. Milburn, service education department, Frigidaire Corp.; W. A. Brown, sales education department, Frigidaire Corp.; Dave Reeves, regional manager of Delco division; Virgil Baker, Olympia dealer, and Ralph Whaley, president, Power Plant Engineering Co.

## San Francisco Chronicle Model Home No. 3 was G. E. Equipped

The description of one of the model homes sponsored by the *Chronicle* in San Francisco, published in the Jan. 2 issue on page 13 was headed, "San Francisco 'All Electric' Home is Frigidaire Equipped." This house, which was model home No. 3, was General Electric equipped. The refrigerator was installed by the H. B. Rector Co., Inc., San Francisco, Cal., General Electric distributors, who write: "A General Electric refrigerator was specified on this home, was installed on the opening date, and was purchased by the contractor who built the house."

## L. D. MEHAFFEY TO PREPARE SPECIAL TRAINING COURSE FOR G. E. RETAIL SALESMEN

L. D. Mehafeff has been appointed by the electric refrigeration department of the General Electric Co. to prepare a special course of training for retail salesmen.

Mr. Mehafeff has had 20 years' experi-



L. D. Mehafeff

ence in the field of selling and training of salesmen. He states that distributors can make more sales and more money if they train their salesmen. He points out that a doctor, lawyer, engineer, or any other professional man is trained for his vocation and that it is just as important for a distributor to train his salesmen to be productive, as the success of his business depends upon the soundness of his choice of man power.

## G. A. Whiteman to Join Cherry Burrell Corp.

George A. Whiteman, dairy specialist in charge of sales for the Esco Cabinet Co., West Chester, Pa., in New York state territory, has tendered his resignation, effective Mar. 1, to accept a position with the Cherry Burrell Corp., Syracuse, N. Y. Mr. Whiteman has been with the Esco company since its organization. In his new capacity he will have charge of the sales of the new Cherry Burrell electric milk cooler.

## PROF. WOOD ADDRESSES LOCAL A. S. R. E. SECTION

(Concluded from page 1, column 3)

problems of dehydration, particularly in meat cases and coolers.

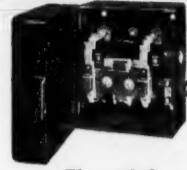
The following were in attendance:

Chas. M. Lee, Wood Conversion Co.  
H. I. Phillips, Flintlock Corp.  
R. H. Swart, Kelvinator Corp.  
George T. Sutphin, Dalrymple-Kelvinator Co.  
R. W. Doeg, Kelvinator Corp.  
S. T. Harry, Kelvinator Corp.  
T. H. Nutter, Kelvinator Corp.  
H. G. Chamberlain, Flintlock Corp.  
V. W. Crone, General Necessities Corp.  
G. Roy Olmatt, General Necessities Corp.  
Harry C. Hayes, General Necessities Corp.  
F. M. Cockrell, Electric Refrigeration News.  
G. R. Kingston, Frigidaire Corp.  
Bruce W. Palmer, Palmer Electric Co.  
R. O. Ashton, Frigidaire Corp.  
Wm. J. Smith, Kelvinator Corp.  
B. F. Wright.  
A. L. McCormick, General Electric Refrigeration.  
Professor A. J. Wood, Pennsylvania State College.  
George B. Bright, George B. Bright & Co.  
Glenn Muffly, Copeland Products, Inc.  
R. B. Fehr, Copeland Gear Lapping Syndicate.  
A. J. Nicholas, Hudson Motor Car Co.  
R. H. Berry, Hudson Motor Car Co.  
Roger K. Braun, Kelvinator Sales Corp.  
C. F. Belshaw, George B. Bright & Co.  
Earl P. Oswald.  
N. J. Bohn, Kelvinator Corp.  
R. C. Doremus, George B. Bright Co.  
C. M. Gilbert, American Radiator Co.  
Emmet J. Mueller, Vilter Mfg. Co.  
J. N. Yarnell, American Radiator Co.  
E. E. Vadakin, Rice Truck Refrigeration, Inc.  
H. A. Turner, General Electric Refrigeration.  
L. W. Eggleston, American Radiator Co.  
D. D. Wile, American Radiator Co.  
E. F. Hubacker, Norge Corp.  
R. G. Nelson, Norge Corp.  
H. E. Rollin, Norge Corp.  
D. H. Corlette, Wood Conversion Co.  
D. G. Ellis, Kelvinator Corp.

Value of lighting equipment produced in 1927 amounted to \$251,449,061 as compared to \$240,373,608 in 1926 and \$217,793,077 in 1925.—*Electrical Manufacturing.*

## I-C Automatic Motor Control for REFRIGERATORS

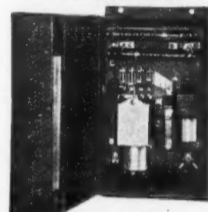
THERE'S A CORRECT TYPE FOR EVERY INSTALLATION



Class 8512 A. C. Contactor



Class 8532 A. C. Starter



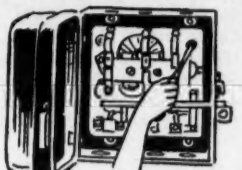
Class 7107 D. C. Starter

A standard feature of all I-C Control is the removable mechanism panel. This arrangement is greatly appreciated by the electrician as it facilitates wiring -- and all connections are accessible.

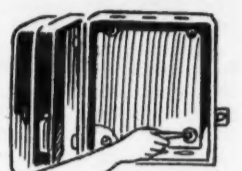
Overload protection can be provided where necessary and is arranged so that it can be reset without opening the enclosing cabinet.

For complete information write for catalog describing a complete line of contactors and A. C. or D. C. Automatic Starters

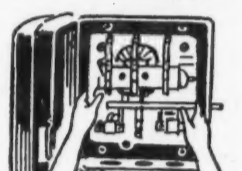
EASILY INSTALLED



LOSEN 3 SCREWS



INSTALL CABINET



REPLACE PANEL AND MAKE CONNECTIONS

Industrial Controller Co. MILWAUKEE, WIS. U.S.A.

# ATLAS REFRIGERATOR CASES

Manufacturers! . . . ATLAS Plywood

Cases make your refrigerator packing easier, simpler, quicker. And the truly remarkable protection they afford is worth many times the cost of the cases.

Dealers and agents! . . . ATLAS Plywood Cases save you time and labor in unpacking. Their protecting parts eliminate travel damage. Their surprising lightness in weight saves you freight.

Ask us to tell you more fully the economies Atlas Cases bring to you.



Atlas Packing Cases  
CARRY THE WEIGHT—SAVE FREIGHT  
ATLAS PLYWOOD CORPORATION

Park Square Bldg. Boston, Mass.  
New York Office 33 W. 42nd Street  
Chicago Office 649 McCormick Building

Seven Factories in New England, the South and Canada. Branch Factories in Twelve Cities.

## CHANGE NOTED IN THE ATTITUDE OF ICE MEN TOWARD SMALL UNITS

Agree that Electric Refrigeration is Here to Stay; More Friendly Attitude is Evidenced

The change in the attitude of the ice manufacturer toward electric refrigeration, which has been brought about in the past two years is interestingly presented in statements coming from heads of ice companies and associations, appearing in the January issue of *Ice and Refrigeration*.

In contrast to the first and natural reaction of the ice man which caused him to brace himself in an attempt to fight off the electric refrigerator we now find him in a friendly and optimistic frame of mind, fully realizing that the "small machine" is here to stay but also fully conscious of the beneficial effect that the publicity given electric refrigeration has had in increasing not only the sales of the mechanical units but also those of ice in many cases.

Perhaps typical of this attitude is a statement coming from T. G. Rogers, secretary and treasurer of Lake Simcoe Ice Limited, Toronto, Canada, who says, "No one can gainsay the fact that the mechanical refrigerator has come to stay; it has, moreover, become firmly entrenched through its manifold selling agencies, and the background of publicity has created a favorable attitude toward it in the public mind."

"In Toronto the average of income is fairly high and there is a good deal of surplus wealth, conditions which undoubtedly favor the capital outlay necessary for the household unit as compared with the ice service. Here again the power rates, due to Hydro development, are at a very low point, so that maintenance cost is a talking feature of the salesman."

"In consequence of these conditions we must concede the loss of practically our entire apartment business, and most of the newer residences of higher values are now advertised as being equipped with one form or another of mechanical refrigeration."

### Ice business good in Toronto

"Nevertheless the past year has been a good one for the ice dealer in the increased tonnage by delivery and through cash and carry trade, and also, we are glad to say, in the public esteem in which the business is held."

"If the mechanical unit has achieved success it has not been entirely at the expense of the ice business. There is no sign of retrogression, but on the contrary two of three new ice-making and ice-storage plants are being erected, and delivery equipment and the means of servicing it is being augmented and improved."

In general agreement with this expression is a statement from A. O. Wilson, manager of the Artificial Ice Co., South Bend, Ind., who says "No radical change in conditions prevailed during the present year except, perhaps, a more intelligent and more practical service that was rendered and some constructive advertising and the use of direct mail."

"These activities forestalled the sale of electric refrigeration to such a degree that we have not felt its effects. Conditions have been undergoing a gradual change here, as elsewhere over the country, in that a very large percentage of the heavy trade has gone to mechanical refrigeration. This will no doubt continue until this trade is almost, if not entirely, gone. Our activities, however, have increased the domestic use of ice until, on the whole, the tonnage has increased as well as the average price per ton. This has brought about a more expensive class of service but has enabled us to render a better service, and in the long run, has been beneficial to all concerned."

### Prospects in South Bend are better than ever

"The prospects for the new year are brighter than ever \* \* \* and we confidently expect, with favorable weather conditions, to make 1929 a banner year in the ice industry in this city."

Another typical expression is that of Guy W. Jacobs, manager of the Steubenville Ice Company, Steubenville, Ohio, who declares that, "The small ice machine is and always will be a factor in the business of supplying refrigeration, but we have come to believe that ice and a good refrigerator will continue to be the form of refrigeration for the masses."

National and local advertising, a general cleaning up of ice delivery equipment, greater care in placing ice in the refrigerator in order to avoid water marks, scored ice, and special delivery service are among the features of a program which is being advocated at all meetings of ice dealers.

Along this line, H. L. Filkins of the City Ice Company of Kansas City, Mo., says "We do not feel that there is much that is new to be said regarding the household machine. There is no doubt that is a competitor and must

## Electric Cooling Permits Odorous Foods to be Kept Together



The Arata Bros. Grocery, Portland, Ore., have recently added to their equipment a Frigidaire display case used for holding cheese and smoked meats. On one side of the case, which is 8 feet long, there is a compartment for cut cheese, and on the other side a compartment for wrapped cheese, smoked meats and sausage. A 1-3 hp. compressor is located in the basement. The owners report that odors from one food are not carried to others, as was the case before electric refrigeration was installed.

be recognized as such. The methods used by this company to meet this competition has been to improve our service and try to remove, as far as possible, the objectionable features in order that there may not be a foothold for the machine man. We believe that we have been fairly successful in building up our delivery system and personnel to meet the situation. We educate our drivers in order that they may be informed of the value of the service they are rendering, the uses of ice, also to be neat and clean in their work, courteous to their customers, and the effect of this education has been shown in materially decreased customer complaints. \* \* \* It is our feeling, however, as stated above, that the best and surest method of meeting machine competition is to improve the service to the point where the customer can find few or no reasons to install a machine."

Charles C. Small, president of the American Ice Company, one of the recognized leaders in the industry, says, "Throughout the East there is a growing conviction that the future of the industry lies in the successful application of modern merchandising procedure, backed up, of course, by sound operating practice, and that, with the general acceptance of these ideas the industry will find itself well fortified to meet any kind of competition."

### Ohio ice men happy

An interesting expression comes from Guy W. Jacobs, secretary of the Ohio Association Ice Industries in which he says, "Reports from the various members would indicate that they are all in a happy and optimistic state of mind as to the prospects for the ensuing year. 'Faint-heartedness,' which we must admit did exist in varying degrees for the past several years, seems to have given way to an undercurrent of confidence in the continuing success of the business in which we are engaged. The outside competition, which many predicted would overwhelm the industry in a few short years, has only spurred on those who have their money and years of effort invested in the industry to greater achievements."

In summing up the various statements *Ice and Refrigeration* says in part, "What figures are obtainable point in the direction of a probable increase in volume of sales of from five to ten per cent over that of previous year. There appears to be no disposition on the part of the ice industry to underestimate the severity of the competition of the mechanical machine, or to ignore the inroads it has made in the ice business. In the larger centers of population the fact is conceded that the apartment house trade is entirely lost, as is also that of supplying ice to occupants of high class residences. While the loss of good business is not a cheerful subject to ponder over, there is no evidence of a feeling of depression in the ice industry as to the outlook."

## AMPERES ARE NOT AS DANGEROUS AS THEY WERE IN PAST YEARS

National Electrical Code Revised to Permit Increased Use of Appliances

NUMBER 14 copper wire such as is commonly used for branch circuits in ordinary house wiring will now safely carry more amperes of electric current than formerly, it was pointed out in a discussion relative to recent changes in the National Electrical Code during the meeting of the N. E. L. A. Merchandising Committee in Detroit last week. In the past, regulations governing the installation of house wiring have permitted a baseboard or wall outlet to carry only 10 amperes (110 volts), but the Code now permits the same type of outlet to carry 15 amperes of current.

Other changes in the Code, of special interest to manufacturers and dealers handling portable and other electrical appliances were brought to the attention of the Merchandising Committee by H. J. Mauger through the distribution of a summary as follows:

### New Wiring Provisions for the Convenient Use of Appliances

Changes in the National Electric Code (Article 16)

#### Higher Rating for Wall Outlets:

So called "base board" or wall outlets have been rated up and may now carry 15 amperes (on 110 volts) instead of 10 amperes as formerly.

#### Ordinary Appliance Branch Circuits:

"One or more fixed or portable electric appliances, each rated at 1320 watts may be supplied by an ordinary branch circuit." N. E. Code, Article 1602 A (2) (This is changed from 1100 watts formerly permitted).

Such circuits are still protected by 15 amp. fuses. They are wired with No. 14 gauge wire. N. E. C. 1602 Note.

These circuits are described as "circuits—supplying convenience outlets"—"receptacles not over 15 amp. 125 V.; 10 amp. 250 v."—"To have no permanently connected lighting fixtures." N. E. C. 1602 Note.

#### Medium Duty Appliance Branch Circuits:

These are new. They "are similar to ordinary branch circuits but are wired with No. 10 gauge conductors and fused at 25 amperes." N. E. C. 1602 Note.

"One or more fixed or portable appliances each rated at 15 amperes or 1650 watts and not over 125 volts may be supplied by a medium-duty branch circuit." N. E. C. 1602 A (3).

It is recommended that in locations such as kitchens, laundries and other "working spaces" that this circuit be installed. N. E. C. 1602 A (5).

### Heavy Duty Appliance Branch Circuits:

These are especially intended for high wattage portable air heaters (and other high wattage fixed or portable heating or cooking devices) designed for 220 volt circuits, which limits the current to 20 amperes, but permits 5000 watts.

These circuits "are 2 wire branch circuits derived from a 125-250 volt grounded-neutral interior wiring system supplying energy to fixed or portable appliances. They consist of No. 10 gauge wire and are fused at 25 amperes. Where attachment plug receptacles and plugs are used for connecting devices to such circuits they must be rated at not less than 20 amperes 250 volts." N. E. C. 1602 Note.

(The ordinary, 15 ampere attachment plug cannot be used with these devices).

### Recommendations for Convenience Outlets:

The new code recommends "That each room be provided with at least two attachment plug receptacles located at different points in order to render unnecessary the use of long extension cords and the plugging of portables into lamp holders." N. E. C. 1602 A (5).

### Lighting Branch Circuits:

Appliances for use on circuits which have lighting fixtures permanently wired in are limited to 660 watts, or 6 amperes, 110 volts, as formerly.

H. J. MAUGER—Jan. 26, 1929.

## FRIGIDAIRE DISTRICTS TURN IN LARGE ORDERS AT TEXAS CONVENTION

Approximately 500 sales representatives of the Frigidaire Corp. in Texas and Oklahoma attended a regional convention held in Fort Worth, Tex., on Feb. 6. Twenty officials from the Dayton headquarters attended the meeting and spoke to the visiting salesmen, dealers and distributors.

Orders for nearly \$400,000 worth of business were passed over the footlights, the El Paso district leading with 400 per cent of its January sales quota. Every one of the six sales districts represented exceeded its quota for the first month of the year.

### We Receive Congratulations

We congratulate you on the rapid increase in your subscription list and the general increase in usefulness of your paper.—Donald S. Stophlet, Wisconsin Electric Refrigerator Co., Madison, Wis.

## E. T. L. Service for Domestic and Commercial Electric Refrigeration

Testing and experimental laboratory service for Manufacturer, Distributor, Central Station  
Test data exclusive property of client

### ELECTRICAL TESTING LABORATORIES

80th Street and East End Avenue, NEW YORK CITY, N. Y.

## Immediate Delivery

Highest quality seamless copper tubing—perfectly dehydrated and solder-sealed—ready for quick installation. Send your production requirements for quotations—or wire for rush shipment from stock.

## WOLVERINE TUBE CO.

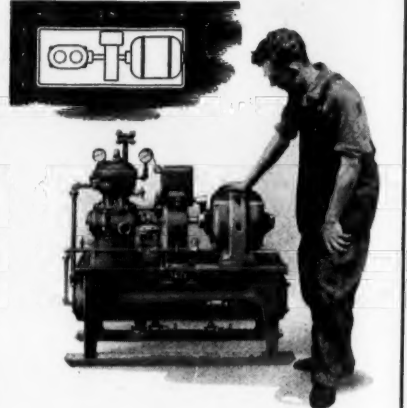
SEAMLESS COPPER

BRASS & ALUMINUM

1481 Central Ave.,

Detroit, Michigan

Sales Offices: Cleveland; Chicago; Atlanta; Los Angeles; Denver; Dayton, Ohio; New York City; Dallas, Texas.



Small Space Required for the



Refrigerating Unit

As builders of commercial refrigerating equipment for nearly fifty years, we have incorporated in our designs the features of compactness, pleasing appearance, economy and reliability, that insure success.

Distributors for Available Territory Wanted



## Table-Type Electrolux Saves Space For World's Largest Food Purveyors

By Dorothy Dignam



The "table-type" has caught on in England.

This is true of commercial business as well as residential and apartment sales and it is interesting to note how small stores and large restaurants have appropriated a type of appliance planned originally for bungalows and kitchenettes.

Electrolux Ltd. of London, have been pioneers in merchandising the table-model gas refrigerator. And among their best customers are the J. Lyons & Co., Ltd. commissaries.

This firm, said to be the largest food purveyors in the world, operates a string of "food depots" in every part of England, and are expanding at the rate of a new store every eight days. There are Lyons' tearooms, restaurants, bakeries, confectionery stores, dinner-dance palaces, even hotels, under this one management. Their gas consumption in London alone is equal to that of a city of 100,000 persons.

Due to the unprecedented growth of the business within the last few years, many of the Lyons' restaurant kitchens that were originally of ample size have

suddenly become short of working space and the introduction of table-type refrigerators has made possible the elimination of some of the ordinary work tables. The table Electrolux models are found especially convenient for the preparation of sandwiches and salads, and the serving of butter. Without taking a single step, the pantry chef has all perishable materials right at hand. This has promoted great efficiency in the kitchens.

The economies effected have been even more striking. Formerly the ice refrigerators were replenished twice a day. This is not unusual in a restaurant kitchen where hot cooking is more or less continual. A record of cost was kept on one of these table-type Electrolux machines and it was found that the entire cost of operation for 24 hours was less than the labor-cost of re-icing an ice refrigerator during the same period, and this did not take into account the added cost of the ice itself.

J. Lyons & Co., Ltd., have been so well satisfied with their gas-operated installations that they have recently placed an order for five hundred ice-cream preservers to be delivered March 1, 1929.

## Restaurant Owner Drops In and Buys 4 General Electrics for Chop House

R. H. Davisson Co., Long Beach, Handed Order for Equipment Totaling \$1,470

(See Photo on Page 1)

By Helen Lockwood Coffin

Just before Christmas the owner and originator of "Martin's in Long Beach," a phrase synonymous with "Rector's in New York," dropped in casually and ordered a complete installation of General Electric refrigerators for his restaurant from R. H. Davisson Co., Long Beach, Calif. He bought four regular models from stock, with no changes or alterations. The cost of installation was practically nil. The equipment sold for \$1,470.

Mr. Martin has been sixteen years in the restaurant business and being that rare combination, a practical business man with vision, he has been successful. His aim was "quality at low cost" and he kept his goal in view all through the years. His was at first an alley restaurant, "short orders of quality for short prices." He has just opened one of the most beautiful and finely equipped steak and chop houses on the Pacific Coast.

"Just as easy as that!" H. S. Hutchinson, sales manager for the Davisson Co. told me. "The sale was already made for us by the national reputation and advertising of the manufacturers. Mr. Martin knew exactly the needs of his business. His is a strictly short-order house. He keeps the most exact hours and shuts up shop in between; serves breakfast 6:30 to 9; lunch, 11 to 2; and dinner, 5:30 to 8; his is also strictly counter service. He serves forty people at a time and averages three hundred patrons a day. He orders supplies in accordance with what he knows his trade will be and being a short order place, he does not have cooked food left over. His refrigeration needs are to keep his uncooked materials.

"He bought one of our P 42 models,

just to keep his cream in. It gives him six and one-half square feet of space to keep it in. He bought two of our R 52 models, one for butter and one for milk. And one of our P L 95 models for steaks and chops. This holds 600 chops and steaks and gives some idea of how much business he does.

"This was our first restaurant installation and it was such an outstanding success that we are going in for that line of business after this. We are better equipped to handle it now, for we have more display room and a larger selling staff."

The R. H. Davisson Company has been in business in Long Beach a little over a year, in rather crowded quarters at 120 West First Street. January 14 the company moved into larger and most attractive show rooms at 101 American Avenue, a corner store on two busy thoroughfares. At present there are nine salesmen and one "outside" man. So far the work has been mostly domestic and apartment house installations, but the company is prepared now to enter the commercial field with a definite purpose and plan of action.

I asked Mr. Hutchinson if his company followed a formal sales talk program and he said that an outline was suggested by the manufacturers and they utilized that and supplemented it by "original inspirations" to suit the particular selling job in hand. But they find that the introductory and even concluding sales talk has been done for them largely by the national advertising and that their main business is to make their local headquarters known to those whom the national advertising has "sold."

## BRITISH TRADES DIRECTORY LISTS MANUFACTURERS AND USERS OF REFRIGERATION

The striking advance made in the application of refrigeration to trade and industry in England and Ireland during the year 1928 is reflected in the many additions to the classified trade section of manufacturers and users of refrigerating machinery and appliances, which is contained in the "Ice and Cold Storage Trade Directory for 1929," published by Iliffe & Sons, Ltd., London, England.

A copy of the 24th issue of this annual directory has been received. The front portion of the book is devoted to tables of cold storage data, properties of refrigerants, relative humidity percentages, heat conductivities of materials and other tables of value to the refrigerating engineer and user. Details are given of the new companies registered since the last issue, whose products include refrigeration.

In addition the directory contains a listing of the British Association of Refrigeration, National Federation of Cold Storage and Ice Trades, Institut International Du Froid, Imported Meat Trades Association, Inc., and cold stores and ice factories in England and Ireland.

## RHINELANDER PREPARES REFRIGERATION MOVIE

A moving picture film has been prepared by the educational department of the Rhineland Refrigerator Co., Rhineland, Wis. The film dramatizes the history of early refrigeration and includes interesting scenes taken at the source of supply of the raw materials used in the manufacture of refrigerators. The film closes by taking the spectator through the plants of the company. The films are in standard and 16 mm. sizes and are available for loan.

TRADE  
EXTRA DRY ESOTOO

MARK

THE PUREST

## SULPHUR DIOXIDE

Analysis Guaranteed

We have an agent, with our product in stock, near you  
Wire us where we can serve you

VIRGINIA SMELTING CO., WEST NORFOLK, VA.  
F. A. Eustis, Secretary 131 State St., BOSTON 2 Rector St., NEW YORK

## Color!

If you're using color, be sure you're getting durability. PEMCO Porcelain Enamels are as durable in chromatic colors as they are in black, gray and white. Porcelain Enamel & Manufacturing Company, Baltimore, Md.



## Manufacturers of ICE CREAM CABINETS

We will build Ice Cream Cabinets to your design  
ready for installation of compressors  
REPLACEMENT PARTS FURNISHED

Motors Metal Mfg. Co. 5936 Milford Street  
DETROIT 10 MICH.

*You would discharge an employee for inefficiency then why wink at it in a Refrigerator..?*



materials. It will actually reduce the running time of the unit 15% . . . saving wear and tear on the machine . . . increasing the useful life of the refrigerator . . . and increasing the consumer's satisfaction. Dry-Zero is absolutely odorless . . . It is one of the cleanest . . . most sanitary insulants known . . . It eliminates all odor troubles.

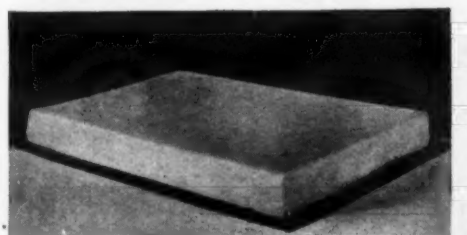


A refrigerator has a certain job to do . . . to preserve food by keeping it cool and free from contaminating odors. It must keep out heat to the maximum extent to reduce machine running time to the minimum . . . yet in an ordinary refrigerator 80% of the heat entry is right through the walls.

Heat penetration is a matter of insulation. You must have the most efficient heat stop to have the most efficient operation. Dry-Zero is the most effective insulation in commercial use. It is 20% to 40% more resistant than any other of the common

Dry-Zero Corporation  
130 N. Wells St.  
Chicago, Ill.

# DRY-ZERO

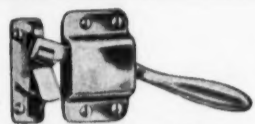


The Dry-Zero Pliable Slab is easily installed and hermetically sealed in a single operation by pressure alone, due to the especially designed and patented sealing flange, found only in Dry-Zero. There is no waste or loss of time or labor. Dry-Zero will not swell, crack or settle.

## EASTERN STAR SANITARIUM INSTALLS ELECTRIC COOLING

The Order of Eastern Star Sanitarium, Macon, Ill., was recently installed with electric refrigeration. A large Seeger refrigerator, 8 ft. by 4 ft. by 7 ft., is equipped with a Frigidaire compressor which also furnishes 200 pounds of ice daily for hospital use and drinking water. The installation was made by the Gill-Davis Electric & Gas Appliance Co., 154 Merchant St., Decatur Frigidaire distributors.

Other installations made recently by this company are the Masonic Temple Decatur, using a Northey refrigerator, Frigidaire equipped; the Greider Cafe; and the Butterfly Confectionery.



Distinctive  
Refrigeration  
Hardware

PATENTED TRIPLOCK  
Winters & Crampton Mfg. Co., Grand Rapids, Mich.

20%

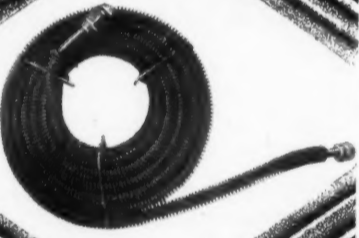
of all retail sales result from  
effective displays.

### Trutulife Foods

selected for proper shelf arrangement  
complete a refrigerator display  
appealingly and permanently.  
Price list sent on request

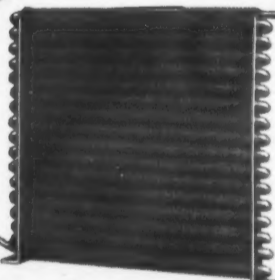
Trutulife Wax Products Co.  
27 Erie St., Milwaukee, Wis.

## McCORD BUILT CONDENSERS



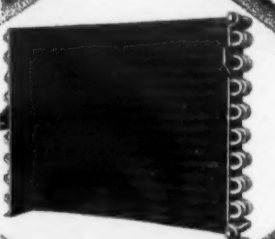
Type "B" Spiral Fin Continuous Coil  
McCORD CONDENSER

The popular "bee hive" condenser designed to occupy  
a minimum of space. It is installed so that all air  
currents created by the fan pass over the coils giving  
great capacity with a small amount of tubing.



Type "A" Double Row Spiral Fin  
McCORD CONDENSER

Adapted to the larger refrigerating units used com-  
mercially and for apartment house installations. This  
condenser is made up of seamless, bright annealed  
tubing with continuous corrugated spiral fin that has  
made McCord condensers leaders in the field.



Type "A" Triple Row  
Continuous Tube  
McCORD CONDENSER

McCORD RADIATOR & MFG. CO.  
DETROIT MICH.

# ELECTRICAL WIRING SUPPLIES

## Refrigeration Industry Uses Large Quantities of Safety Switches, Armored Cable, Conduit and Fittings. Sources of Supply Presented

### INDUSTRIAL CONTROLLER CO. HAS MOTOR STARTING SWITCHES FOR ELECTRIC REFRIGERATION

Industrial Controller Co., Milwaukee, Wis., manufacturers of alternating and direct current controlling devices, makes



two types of motor starters especially adaptable to refrigeration. Type B is arranged for two-wire control while the Type C starter has a three-way switch. The switch permits either manual or automatic operation.

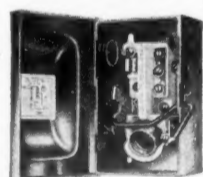
### ARMORED CABLE AND FLEXIBLE CONDUIT USED EXTENSIVELY

The National Electric Products Corp. (formerly the National Metal Molding Co.) Pittsburgh, Pa., manufactures Flex-steel armored cable which is used extensively by electric refrigerator manufacturers for the wiring connections in self-contained units. This company also makes a complete line of cutout boxes and fittings for use with armored cable.

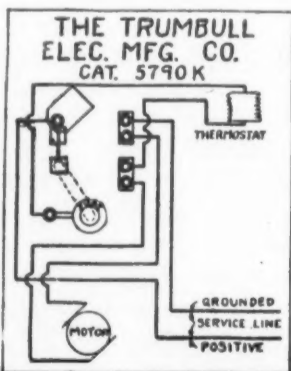
National metal molding is used to protect electrical lead-in wires and to hold tubing in exposed jobs. This company also makes interlocked heater and carburetor tubing which is used by dealers to protect copper tubing. It is adaptable to this purpose because of its flexibility.

### THERMOSTAT CONNECTION PROVIDED IN TRUMBULL SWITCH BOX

The Trumbull Electric Mfg. Co., Plainville, Conn., makes a large line of electrical supplies. Of particular interest to the electric refrigeration field is their



safety switch No. 5790-K which has an extra terminal for connecting the thermostat as shown in the diagram here-with. Their switch No. 5790 is of the 2-



pole single blade single fuse type. The box is of small size, being only 3 11/16 inches wide by 6 inches high by 3 3/8 deep.

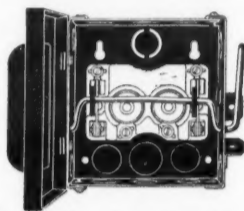
### ROLLER-SMITH OFFERS NEW LINE OF SMALL CIRCUIT BREAKERS

The Roller-Smith Co., 233 Broadway, New York City, announces a new line of small, enclosed, air break circuit breakers, type EAF. These circuit breakers are offered for the protection of motors and feeder circuits against overload and failure of voltage.

Type EAF circuit breakers are made in capacities from 1/2 ampere to 80 amperes; 250 volts, D. C. and 550 volts, A. C.; two and three pole; overload, under-voltage, time limit, free handle; all full enclosed.

### WADSWORTH OFFERS SAFETY SWITCHES IN THREE TYPES

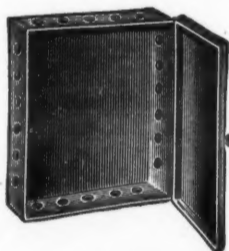
The Wadsworth Electric Mfg. Co., Covington, Ky., makes a full line of safety switches for domestic and industrial electrical wiring. The illustration shows safety switch, catalogue No. 33, having two blades and two fuses for use on either a fused or grounded circuit. A similar switch, catalogue No. 30, is made with a single switch blade and a single fuse for use on a grounded circuit, also catalogue No. 25, which has two blades, two fuses and a solid neutral for use on a three wire grounded neutral circuit. The three switches are offered to meet



the requirements of various types of installations. Dimensions of the cabinet are: width 5 1/4 inches, length 5 1/4 inches, depth 3 1/4 inches. Knock-outs are provided in both ends, sides and back of the cabinet and the endwalls are removable.

### JUNCTION BOXES FOR CONDUIT JOBS OFFERED BY AURORA STEEL PRODUCTS

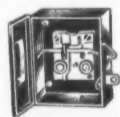
The Aurora Steel Products Co., Aurora, Ill., offers safety switches and cutout boxes. The accompanying illustration shows one of the surface boxes manufactured by this concern. The necessary



wires and in some instances tubing connections are placed in this box and are easily accessible for hooking up the refrigerator. The box is often used without a cover in refrigeration work.

### COMPACT SERVICE SWITCH MADE BY AMERICAN ELECTRIC

The American Electric Switch Corp., Minerva, O., offers the service switch shown here for electric refrigeration wiring. The cabinet is small and by the use of a compact porcelain switch base,



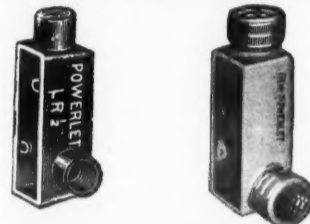
sufficient wiring space is maintained. This switch is made only in 30 ampere size, for either plug or N. E. C. fuses and for 125 volt, 125-250 volt and 250 volt service. Either the solid end wall or the shutter end may be had. In addition to this switch, No. 1211, a number of other types and sizes are available.

### TRUMBULL-VANDERPOEL MAKES SMALL SWITCH FOR HOUSE- HOLD UNITS

The Trumbull-Vanderpoel Electric Manufacturing Co., Bantam, Conn., manufacturing safety switches, offers the enclosed, externally-operated switch shown here, designed primarily for use on small motor installations on grounded identified systems. It is rated at 30 amperes, 125 volts, has a single switch blade and one plug fuse. The other side of the line is connected to the neutral connection block at the top of the switch. This switch is small, being only 3 1/4 in. wide and 5 in. high. It is neat in appearance and is suitable for household refrigeration installations. This switch is known as No. 77. The same switch is adapted for use with thermal overload cutouts in which case it is specified as No. 771.

### CONDUIT FITTINGS AND FUSES OFFERED BY CHICAGO-JEFFERSON

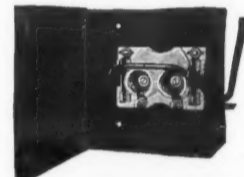
The Chicago-Jefferson Fuse & Electric Co., 1500 So. Laflin St., Chicago, Ill., makes Gem Powerlet conduit fittings in



both threaded and threadless type, also renewable and non-renewable fuses. The above illustrations show Powerlet fittings and cartridge fuses.

### NOARK SAFETY SWITCHES O. K. FOR DOMESTIC REFRIGERATORS

Colt's Patent Fire Arms Mfg. Co., Electrical Division, Hartford, Conn., offers Noark general utility switches in three



styles, namely: catalogue No. 8283 having one fuse and one blade; No. 8383 having two fuses and two blades, and No. 8483 having one fuse and two blades. Knockouts are provided on both sides, ends and back with ample wiring space.

### STATES CO. TIME SWITCHES CON- TROL MILK AND WATER COOLERS

The States Co., Hartford, Conn., manufactures meter and relay testing equipment, time switches, transformers and coils. The type Z, self winding, full automatic switch shown here has been used in dairies and creameries where it



is desirable to have the refrigerating plant start operation at night in order that the temperature in the milk coolers be sufficiently low in the morning. Similar switches, motor driven, are applicable in regulating the operation of motor driven pumps for circulating drinking water through factories. The time regulator used in the States switches is a 15 jewel watch movement. The motor consumes about 10 to 12 watts.

### WIREMOLD PROTECTS TUBING AND MAKES NEAT INSTALLATION

The Wiremold Co., Hartford, Conn., manufactures rigid metallic molding, having a removable covering and with suitable fittings for joints, turns, box connections, etc., and in various sizes for



household and industrial wiring circuits. Wiremold is adaptable for carrying the copper tubing of refrigerator lines and provides a neat method of installing tubing which cannot be concealed between walls. It also provides a protection to the tubing against mechanical injury.

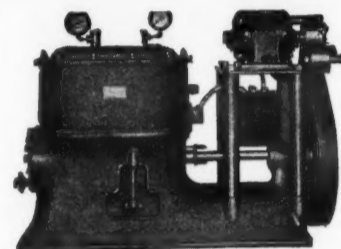
## The Filtrine Filter assures pure, clear water from your FRIGIDAIRE

### Water Cooler

WRITE FOR DETAILS

**FILTRINE**

MANUFACTURING COMPANY  
49 LEXINGTON AVE., Brooklyn, N.Y.  
Manufacturers of FILTERS & COOLERS of all sizes.



### ELECTRIC REFRIGERATION DISTRIBUTORS AND DEALERS

You need the PEERLESS line of commercial units.

PEERLESS units give you a COMPLETE line, ranging from 1 to 10 tons.

Sixteen years of successful manufacturing and merchandising of ice machines are behind the PEERLESS name. Our record warrants your most exacting investigation.

Write or Wire

**PEERLESS ICE MACHINE CO.**

515 W. 35th St.  
CHICAGO, ILL.

## FLINTLOCK CONDENSERS

Efficient — Economical  
Compact

Greater Efficiency  
at Less Cost

WRITE FOR OUR BOOKLET

## FLINTLOCK CORPORATION

4461 W. Jefferson Ave.  
DETROIT, - - MICH.

## BRUNSWICK- KROESCHELL REFRIGERATION



32  
years of  
continuous and  
successful application

Capacities: 500 lbs. refrigerating effect and up, covering the entire field of applied refrigeration.  
Refrigerants: Ammonia; Carbon Dioxide; Methyl Chloride.

BRUNSWICK-KROESCHELL COMPANY  
Refrigerating & Ice Making Machinery  
NEW BRUNSWICK, N.J. - CHICAGO, ILL.

## Why, When and How to Ground Electric Wiring

Crouse-Hinds Co., Syracuse, N. Y., manufacturers of conduits and all kinds of fittings for rigid conduit wiring, makes a complete line of safety circuit equipment. Bulletins issued by this company show the most approved methods of grounding electrical wiring so as to insure complete safety to those handling port-

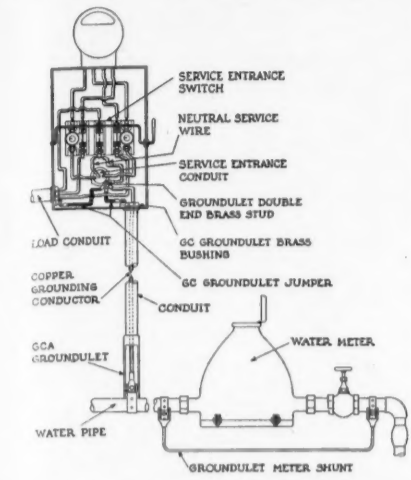


Diagram of Grounded Service Entrance Installation Using Crouse-Hinds Safety Circuit Fittings

able appliances in homes and industrial plants. This literature is of particular interest to the electric refrigeration industry on account of the tendency of the National Board of Fire Underwriters to make stricter regulations governing the grounding of electrical appliances.

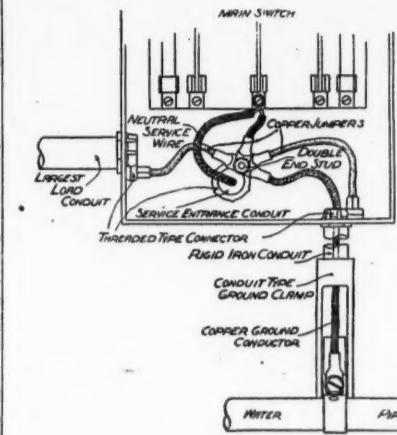


Diagram of Grounding Connections Only Showing Methods of Bonding Conduit Terminals.

## MOTOR STARTING SWITCHES MADE BY ALLEN BRADLEY

The Allen-Bradley Mfg. Co., Milwaukee, Wis., manufacturers of electric controlling apparatus, issue two bulletins, No. 710 and 720, describing across-the-line starting switches for electric refrig-



eration applications. The illustration shows the contactors which have rolling contacts to prevent sticking and welding, the inducto-therm relays which protect against single phase running and sustained overloads, also the push buttons in the cover of the box.

## NEW SANITARY REGULATIONS OPEN BIG FIELD IN CUBA

The new sanitary regulations in respect to milk and its products, which come into operation in Cuba next March, are bound to increase the market in that island for up-to-date dairy equipment, says an item in the January issue of *Ice and Cold Storage*. The article says: "According to the American Trade Commissioner at Havana, the regulations provide for the erection of numerous dairies equipped with cooling apparatus and cleaning equipment, as well as pas-

teurizing plants and refrigeration systems. Apart from a few coolers that are made locally, there is no domestic manufacture of dairy equipment.

## GENERAL ELECTRIC ANNOUNCES SMALL OIL-IMMERSED SWITCH

A small, inexpensive, oil-immersed switch for use in throwing small alternating or direct-current motors across the line, is announced by the General Electric Co. of Schenectady, N. Y. It is a very simple device having a minimum of component parts: a one-piece cast iron cover, including the switch mechanism, and a small, cast-iron tank for oil. The moulded compound switch base carries the stationary contact stud parts, and the moving contact assembly is mounted on another one-piece moulded part. The contacts are of the silver to silver, double-break type. The use of these contacts and of the moulded arm eliminates shunts or drum-type contacts. Provision is made for conduit connection by means of an incoming conduit box cast in the cover.

## FOREIGN SHIPMENTS OF ELECTRIC REFRIGERATORS

November Exports Reported by Bureau of Foreign and Domestic Commerce

Country of Destination	Number	Value
Austria	1	\$ 124
Belgium	36	7,788
Denmark	4	1,020
Finland	14	3,361
France	4	874
Germany	95	17,781
Gibraltar	1	362
Netherlands	12	2,062
Norway	10	1,989
Portugal	6	1,237
Rumania	1	200
Spain	35	7,454
Switzerland	10	1,592
United Kingdom	19	2,690
Canada	804	140,937
Costa Rica	3	901
Guatemala	1	541
Honduras	2	830
Nicaragua	3	507
Panama	34	7,731
Salvador	6	2,575
Mexico	99	17,522
Bermudas	18	4,875
Barbados	4	839
Jamaica	3	338
Other British West Indies	10	1,956
Cuba	64	10,821
Dominican Republic	8	3,447
Netherland West Indies	1	925
Haiti, Republic of	2	373
Argentina	719	102,369
Bolivia	1	195
Brazil	419	78,437
Chile	22	1,683
Colombia	61	12,866
Ecuador	12	1,974
Peru	4	1,092
Uruguay	92	18,741
Venezuela	51	10,675
Aden	1	220
British India	274	17,778
British Malaya	3	839
China	34	9,046
Java and Madura	1	62
Hong Kong	15	2,505
Japan	1	409
Philippine Islands	86	13,722
Australia	904	242,185
New Zealand	21	3,603
Belgian Congo	1	47
British East Africa	4	1,071
Union of South Africa	172	32,490
British West Africa	7	1,157
Egypt	11	2,383
Other Portuguese Africa	1	377
Canary Islands	1	294
<b>Total</b>	<b>4,228</b>	<b>\$799,872</b>

## TESTS SHOW ELECTRIC COOLING ECONOMICAL FOR DAIRY INDUSTRY

That the replacement of ice cooling on the farm by electric refrigeration is a matter which will prove to be a time saver and a more economical and efficient way of cooling milk on the dairy farm, is the belief expressed by a New York state farmer in an article in the January issue of the *Daily Farmer*, in which he comments on a series of experiments with electrical refrigerating units for cooling milk.

"Experiments," the farmer states, "were conducted on milk which was placed in tanks cooled by electric refrigeration without stirring or aerating and the results compared with other cans of milk which were first aerated and then placed in the cooler after taking every practical precaution. The bacteria count of the milk placed directly in the cooler was 8,000 per cubic centimeter, and when aerated under ideal conditions it was 11,000. But the count after being aerated under ordinary conditions and then placed in the cooler was 36,000 per cubic centimeter.

"With the machine set up to keep the water at a temperature of 40 degrees Fahrenheit, it has been possible to produce milk with a count ranging from 10,000 to 20,000. Stirring the milk or running it over an aerator caused a count of 50,000 unless unusual precautions were taken to keep the utensils sterile."

In conclusion the farmer points out that the less we handle the milk when we cool it quickly and properly, the better the quality will be. The reason for this is that there is less opportunity for contamination by exposure to air while passing over the aerator and by coming in contact with surfaces of the aerating equipment and other utensils which may not be sterile.

## REFRIGERATED AIRPLANES WILL BE USED TO TRANSPORT SHRIMP FROM MEXICO TO CALIFORNIA

Three airplanes equipped with complete refrigeration equipment have been ordered by a New Mexico firm for the transportation of shrimp. The cooling apparatus is operated from an electric dynamo driven from the propeller.

This company intends to transport shrimp, which cost 10 cents a pound in Mexico, to California, where they retail for 60 cents a pound.

## FRIGIDAIRE MAN GIVES TIP ON WINTER SELLING

N. K. Gorham, manager of the Frigidaire Sales Co., Saginaw, Mich., believes that people who buy ice in midwinter are February prospects for electric refrigeration. "These families," he states, "can be spotted by any salesman who takes a walk through the best residential districts and makes a note of the homes with 'ice wanted' cards displayed." During the month of December, Mr. Gorham tried this plan and found that eight out of twenty such homes were immediate prospects.

## Offers Prizes in Contest for Kitchen Sink Designs

A competition for improved designs for kitchen sinks has recently been announced by the Art Alliance of America, 65 East 56th Street, New York City. Prizes aggregating \$2,000 have been donated by the International Nickel Co. This contest is open to all comers and a folder giving full details may be had by writing to the Art Alliance. All designs must be ready and submitted between March 14 and 18, 1929.

Five Minutes from Juarez, Old Mexico  
**A Cordial Welcome Awaits You at**  
El Paso's Newest and Finest  
**HOTEL HUSSMANN**  
"On the Plaza"  
EL PASO, TEXAS  
300 ROOMS - 300 BATHS - ALL OUTSIDE \$2.25 UP  
HARRY L. HUSSMAN, PRES. HARVEY DAY, MGR.



## C P Refrigeration

Self-Contained Units from 500 pounds to 4 tons ice melting capacity. Ammonia or methyl chloride refrigerant. Over 30 years in the refrigerating machine business.

We invite the live wire dealer who seeks to build a permanent business to get in touch with us.

THE CREAMERY PACKAGE MFG. COMPANY  
1243 West Washington Blvd. Chicago, Ill.

## A NEW Development by Day-Fan



## A Motor built by Day-Fan Engineers to meet All the Requirements of Electric Refrigeration Applications

A close working relationship to the electric refrigeration industry has played a large part in enabling Day-Fan Electric Company to keep abreast of manufacturing progress. This new refrigeration motor has been built to advanced standards of quietness, efficiency and dependability. It is a brush-lifting motor, and mounted with rubber cushion on a specially designed cradle-base. Electrical hum and vibration have been eliminated. Other characteristics are high power factor, high starting torque, ample overload capacity.

The manufacturers of the Copeland Refrigerator and the Kelvinator Corporation each by the adoption of this motor as standard for all their household models, have put their stamp of approval on the most advanced development of our motor builders. Users of these refrigerators will enjoy the silence, the economy in use of current, the dependable running with practically no attention which the Day-Fan motor insures.



Day-Fan Electric Company, Dayton, Ohio

**Day-Fan**  
RADIO · MOTORS · FANS  
PRODUCTS

**SAVOY HOTEL**  
750 ROOMS  
WOODWARD at ADELAIDE  
EXQUISITELY FURNISHED ROOMS EACH with BATH  
**\$2.50 to \$4.00**  
SINGLE  
**\$4.00 to \$5.50** DOUBLE  
**SAVOY GRILL**  
AND COFFEE SHOP  
SELECTED FOODS OF KNOWN QUALITY  
IN THE HEART OF  
**DETROIT**

# COPELAND MEETING REGISTRATION LIST

(See story on page 1)

**AKRON, OHIO**  
L. S. Wallace, Akron Copeland Co.  
G. M. Nutter, Akron Copeland Co.  
R. N. Zahniser, Akron Copeland Co.  
E. A. Murray, Akron Copeland Co.  
W. B. Blessman, Klages Coal & Ice Co.  
E. R. Moats, Central Hdw. & Stove Co.  
James Brodie, Brodie Elec. Shop, Cuyahoga Falls, Ohio.  
C. L. Whitsaman, Whitsaman Radio & Elec. Serv. Co.  
Frank Meese, Meese-Reinker Co.  
James Williams, Meese-Reinker Co.  
W. Wilson, Central Hdw. & Stove Co.  
Mrs. J. Brodie, Brodie Elec. Shop, Cuyahoga Falls, Ohio.  
G. P. Wilson, Central Hdw.  
H. D. Thomas, Thomas Jewelry & Music Co., Barberton, Ohio.

**ALBANY, GA.**  
J. H. Patterson, Jr., S. Georgia Appliance Co.

**ALBUQUERQUE, N. M.**  
Frank Scheck, Scheck Battery & Radio Sta.

**ALBANY, N. Y.**  
B. L. Johnson, B. L. Johnson Co., Inc.

**BALTIMORE, MD.**  
Sidney Watters, Baltimore Copeland Co.

**BIRMINGHAM, ALA.**  
W. L. Tyson, Ideal Htg. & Refrig. Co.  
A. H. Ayres, Ideal Htg. & Refrig. Co.

**BOSTON, MASS.**  
Harry C. Ryan, Beaudette & Graham Co.  
John W. Barren, Beaudette & Graham Co.  
Geo. W. Sprague, Beaudette & Graham Co.  
A. L. Sullivan, Beaudette & Graham Co.  
M. W. Nickerson, Auburn Elec. Shop, Inc., Auburn, Me.  
Everett E. Straker, Straker's Service Store, N. Attleboro, Mass.  
Edward A. Lutz, Edw. A. Lutz, Inc., Pawtucket, R. I.  
B. M. Higgins, Higgins, MacRoberts Co., Whitman, Mass.  
S. H. Pool, Howard F. Pool Co., Lynn, Mass.  
E. L. Lynch, Howard F. Pool Co., Lynn, Mass.  
John R. Fortin, Portland Copeland Co., Portland, Me.  
Mr. Bliss, Bliss Hdw. Co., Inc., Plymouth, Mass.

**BRADFORD, PA.**  
F. Urban, General Home Supply.

**BROWNWOOD, TEXAS**  
Roy H. Morris, Austin-Morris Co.

**BUFFALO, N. Y.**  
Edw. F. Ball, Joseph Strauss Co.  
Al. W. Stager, Joseph Strauss Co.  
F. E. Johnson, Joseph Strauss Co.  
W. E. Harverson, Joseph Strauss Co.

**CHARLESTON, W. VA.**  
C. R. Dawley, Copeland Refrigerating Co.  
E. E. Munch, Copeland Refrigerating Co.  
W. C. Gartner, Oil-O-Matic Heating Service, Wheeling, W. Va.  
O. H. Hannah, Oil-O-Matic Heating Service, Wheeling, W. Va.  
G. B. Woodward, Van Natre & Woodward, Point Pleasant, W. Va.  
L. C. Prung, Williamson Hdw. & Elec. Co., Williamson, W. Va.  
Clarence Martin, Branham & Britts, Whitesville, W. Va.  
Clyde Jenkins, Montgomery, W. Va.  
George A. Rills, Huntington, W. Va.  
L. C. White and son, Logan, W. Va.

**CHICAGO, ILL.**  
Linn T. Piper, Copeland Refrigeration Co. of Chicago.  
Ralph W. Hobbs, Copeland Refrigeration Co. of Chicago.  
W. J. O'Connor, Copeland Refrigeration Co. of Chicago.  
A. H. Morehouse, M-B Electric Co., LaGrange, Ill.  
F. Bendi, Joliet Copeland Co., Joliet, Ill.  
Geo. Lehr, Joliet Copeland Co., Joliet, Ill.  
H. E. Black, A. P. Spires, Blue Island, Ill.  
E. A. Spires, A. P. Spires, Blue Island, Ill.  
B. F. Marwill, Marwill & Co.  
C. F. Juby, A. C. Juby & Son, Elgin, Ill.  
E. H. Kollman, E. H. Kollman Co., Villa Park, Ill.  
J. A. Portner, J. A. Portner, Wheaton, Ill.  
Mrs. J. A. Portner, J. A. Portner, Wheaton, Ill.  
Leslie Arnett, Stanley Knight Co.  
L. N. Duryea, A. B. Leach & Co.  
Truman L. Voyles, Juby Hdw. Co., Elgin, Ill.  
Amos Hodgkiss, Warren Bros.

**CINCINNATI, OHIO**  
A. L. Pink, Pink Electric Refrigeration Co.  
E. Storor, Pink Electric Refrigeration Co.  
Charles J. Burger, Burger Sales, St. Bernard, Ohio.  
Theo. Clauss.  
Chas. McCullough.  
Wm. Schmitt.  
Harry Eggen.  
John Bogdonoff.  
Mrs. Bogdonoff.

**CLEVELAND, OHIO**  
E. S. Herschberger, B. W. Smith, Inc.

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J. E. Heskett, W. E. Heskett & Co.  
Mr. Stuart, W. E. Heskett & Co.

**DALLAS, TEX.**  
G. H. Blewett, The Blewett Co.

**DENVER, COLO.**  
O. B. Wilt, Knight Copeland Co.  
Mrs. O. B. Wilt, Knight Copeland Co.  
M. W. Knight, Knight Copeland Co.  
Mrs. M. W. Knight, Knight Copeland Co.  
Paul P. Streamer, Copeland-Streamer Co., Boulder, Colo.

**DARLINGTON, WIS.**  
F. A. Craig.

**DYERSVILLE, IOWA**  
G. H. Brunkan, G. H. Brunkan Electric Shop.

**DURHAM, N. C.**  
T. J. Horton, Horton Electric Co., Inc.

**DETROIT, MICH.**  
Mr. Strelinger, Ailing-Strelinger Co.  
Mr. Ailing, Ailing-Strelinger Co.  
J. Lang, Modern Appliance Co., Kalamazoo, Mich.  
Chas. Mould, Modern Appliance Co., Kalamazoo, Mich.  
George Martyn, c/o John Martyn.  
R. K. Horner, City Ice & Fuel Co., Flint, Mich.  
Edw. J. Penny, City Ice & Fuel Co., Flint, Mich.  
C. F. Schwartz, Grosse Pointe Farms, Mich.  
Charles Schmidt, Fair Haven, Mich.  
James Black, Black Pkg. & Htg. Co., Grand Rapids, Mich.  
Harold J. Shanahan, Black Pkg. & Htg. Co., Grand Rapids, Mich.  
Cecil C. White, White Bros. Elec. Co., Holland, Mich.  
J. A. Geddis, Geddis & Norcross, Milan, Mich.  
Fred J. Haltzenbuehler and son, Haltzenbuehler Pkg. & Htg., Mt. Clemens, Mich.  
V. A. Bartlett, Bartlett's Pkg. Shop, Marcellus, Mich.  
George Schmidt, New Baltimore, Mich.  
S. Wilkinson, Detroit Edison Co., Northville, Mich.  
E. A. Horn, H. L. Kimball Co., Port Huron, Mich.  
R. A. Johnson, H. L. Kimball Co., Port Huron, Mich.  
Alfred C. Hay, Eureka Pkg. & Htg. Co., Romulus, Mich.  
Mr. Reese, Reese Drug Co., Mt. Clemens, Mich.  
F. R. Macintosh, Pontiac, Mich.  
R. Stinson, Pontiac, Mich.  
Mr. Barker, Crowley-Milner Co.  
Mr. Moore, Crowley-Milner Co.  
R. D. Naess.  
G. H. Rutherford.

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Elizabeth Black, Fairmont Wall Plaster Co.

**PORT WAYNE, IND.**  
P. B. Arnold, P. B. Arnold Co.

**HAMMOND, IND.**  
G. O. Hagen, Hagen Furniture Home.

**HOUSTON, TEX.**  
D. H. Straus, Straus-Bodenheimer Co.

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L. L. Bohannon, Electric Refrigeration Co.  
C. Thomas, Thomas Elec. Co., Columbus, Ind.  
Geo. C. Rokobrant, Shelbyville, Ind.

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E. W. Casey, Ironwood Pkg. & Htg. Co.

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L. B. McCreary, Western Radio Co.  
J. B. Taylor, Western Radio Co.  
Robert E. Taylor, Jr., Western Radio Co.

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John F. Lang, MacDonald Sales Co.

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H. E. Dobst, Woods-Copeland, Inc.  
J. W. Detweiler, Grand Island, Neb.  
H. L. Ashton, Hastings, Neb.

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R. M. Hunter, Nicholasville, Ky.  
A. J. Elme, St. Matthews, Ky.  
J. W. Demaree, 232 W. Walnut St.  
L. G. Guttermuth, Standard Furnace & Range Co., Louisville, Ky.  
E. W. Graves, Standard Furnace & Range Co., Louisville, Ky.  
S. E. Barnwell, M. H. Moise Co., Louisville, Ky.  
C. E. Dudley, C. E. Dudley Co., Winchester, Ky.  
O. W. Coons, Mt. Sterling, Ky.  
O. W. Willis, Willis Bros., Caneyville, Ky.  
J. E. Blatchford, Altoona Radio & Elec. Co., Altoona, Pa.  
Robert E. Chaplin, Coalport, Pa.  
C. H. Elliott, Newcastle, Pa.  
J. H. Huston, Newcastle, Pa.  
S. J. Hagerling, Newcastle, Pa.  
Walter C. Brand.

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E. Streiffau, East End Cycle Co.

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Mr. Heaverich, Copeland Refrigeration Co.  
Mr. Marles, Copeland Refrigeration Co.  
A. O. Haas, Great Lakes Radio Corp.  
Paul Honold, Chas. A. Honold Co., Sheboygan, Wis.  
Harry Krehl, Krehl & Son, Madison, Wis.  
M. J. Rilling, Rilling Elec. Co., Wausau, Wis.  
M. Douglas, Douglas Hdw. Co., Janesville, Wis.  
Mrs. Douglas, Douglas Hdw. Co., Janesville, Wis.

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George Knecht, Jr., Knecht-Feeney Co.

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Mr. Benner, Powell Electric Co.

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Merwin A. Pond, The New Haven Electric Co.  
L. N. Churchill, The New Haven Electric Co.  
D. J. Noble, The New Haven Electric Co.

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Fred S. Cozens, Copeland Refrigeration Co. of N. Y.  
R. North, Copeland Refrigeration Co. of N. Y.  
F. L. White, Service, Copeland Refrigeration Co. of N. Y.  
Herman Spector, Royal Refrigerator Co., Inc., Brooklyn, N. Y.  
Maurice Stiesel, Glen Cove, N. Y.  
Ralph Dabe, Dabe & Plyer, Hempstead, L. I., N. Y.  
R. Plyer, Dabe & Plyer, Hempstead, L. I., N. Y.  
B. G. Chalfin, Jr., Voorhees Hdw. Store, Morristown, N. J.  
Bill Hecht, Industrial Sales Engineering Co., Newark, N. J.  
Wm. N. Bayler, Jr., Hewitt-Bayler, Inc., New Rochelle, N. Y.  
Andrew Eisler, Spad Stores, New Brunswick, N. J.  
Peter Ewald, 2999 3rd Ave.  
P. H. MacIntyre, Wesco Utilities Corp., White Plains, N. Y.  
Charles Buck, Buck Bros., Middletown, N. Y.  
Nathan Elman, Mt. Kisco, N. Y.  
T. W. Binder, Trenton, N. J.  
Jos. W. Rao, Mt. Kisco, N. Y.  
W. R. Kent, Paterson, N. J.  
F. V. Martin, Atlantic City, N. J.  
C. A. Drewes, Dover, N. J.  
K. S. Baxter, Copeland Refrigeration Co.  
G. F. Dege, Patchogue, N. Y.  
Benjamin Binder, Trenton, N. Y.

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Harry A. Thompson, Edw. N. Eberling & Co., Inc.

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Mr. Shields, Scotland Neck Furniture Co.

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Benjamin Fisch, Copeland Elec. Refrig. Co.

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P. J. Harrison, Copeland Refrig. Co. of Okla.  
H. S. Helms, Helms Elec. Co., Guthrie, Okla.

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R. W. Allen, John J. Miller.  
Roy McLain, John J. Miller.

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W. J. Bolton, The McKean Co.  
E. D. McKean, The McKean Co.  
O. M. Delvier, The McKean Co.  
W. R. Mikesell, The McKean Co.  
L. B. Mullen, The McKean Co.  
F. W. McKean, The McKean Co.  
C. A. Augustine, The McKean Co.

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I. Bornstein, Schimmel Elec. Supply Co.  
I. D. Schimmel, Schimmel Elec. Supply Co.  
C. J. Deens, Schimmel Elec. Supply Co.  
P. L. Shassian, Schimmel Elec. Supply Co.  
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Geo. W. Stine, Phoenixville, Pa.  
Thos. J. Redmond, Westchester, Pa.  
W. J. R. Taylor, James Spear Stove & Htg. Co.  
V. L. Frank, James Spear Stove & Htg. Co.  
H. W. Wolf, Lebanon, Pa.  
G. P. Ebright, Lebanon, Pa.

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C. F. Higley, Carl Windel & Co.

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E. S. Sheets, Sheets & Daddow.

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H. D. Church, Corbit Bros. Pkg. & Htg. Co.

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Mrs. G. Ellis, Ellis Electric Co.

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Mr. Mills, Forbes-Wedde & Co.  
N. C. Laymon, Forbes-Wedde & Co.  
J. R. Lyle, Forbes-Wedde & Co.

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Robert Mack, Thos. J. Northway, Inc.  
Charles Dean, Thos. J. Northway, Inc.  
Allen Crozier, Thos. J. Northway, Inc.  
Earl Eckler, Thos. J. Northway, Inc.  
Harold Mattern, Thos. J. Northway, Inc.  
G. Spencer, Thos. J. Northway, Inc.  
Elmer Lee, Thos. J. Northway, Inc.  
Floyd Dewick, Thos. J. Northway, Inc.  
E. Ryan, Seneca Falls, N. Y.  
E. Barrett, Spencerport, N. Y.  
Angelo Reilly, Penn. Yann, N. Y.  
G. D. VanDuren, Lyons, N. Y.  
R. P. Babcock, Automatic Utilities Corp.  
Wm. C. Knipper, Automatic Utilities Corp.  
Victor Swanson, Swanson Piano Co., Jamestown, N. Y.  
Lawrence Swanson, Swanson Piano Co., Jamestown, N. Y.  
John Sibley, Little Valley, N. Y.  
Ralph Marker, Salamancas, N. Y.  
H. Crandall, Palmyra, N. Y.  
Robert Crowell, Clifton Springs, N. Y.  
L. Morrell, Danville, N. Y.  
Fred Witting.  
H. H. Miller, Automatic Utilities Co.

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W. S. Nickamp, St. Louis Copeland Co.  
R. S. Sample, St. Louis Copeland Co.  
P. A. Schmidt, St. Louis Copeland Co.  
Wm. Meyer, St. Louis Copeland Co.  
Edw. J. Medart, St. Louis Copeland Co.  
A. W. Butterfield, St. Louis Copeland Co.  
Frank Simmons, St. Louis Copeland Co.  
A. Crook, St. Louis Copeland Co.  
E. C. Sorber, St. Louis Copeland Co.  
Adam A. Webb, Webb Electric Appliance Co.  
E. R. Fette, Fette Furniture & Upholstering Co.  
L. P. Quinn, Fette Furniture & Upholstering Co.  
J. D. Weller, Weller Electric Co., Hillsboro, Ill.  
Jack Gerber, Gerber Furniture Co.  
Roy Bennett, Quincy, Ill.  
H. Benson, E. St. Louis, Ill.  
Edw. Leber.  
F. G. Schroeder, Springfield, Ill.  
F. G. Young, Springfield, Ill.  
I. O. Fischer.

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Arthur Dahl.

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R. V. Waggoner, Harper-Meggee, Inc.

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Mr. Wallace, Charles Rice, Inc.  
Mr. Berube, Northampton, Mass.  
Harold Holmes.  
Mr. Wells.  
W. P. Wokey, Pittsfield, Mass.  
Richard H. Tait, Richard H. Tait Co., Worcester, Mass.  
George R. Osborne, Osborne Hdw. Co., Holyoke, Mass.

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V. J. Coughenour, Radio Electric Store.  
Edward Thompson, Radio Electric Store.

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B. I. Cooper, B. I. Cooper Sales Co.  
W. J. Miller, B. I. Cooper Sales Co.  
Wayne E. Bidwell, Bidwell's Electric Shop, Fulton, N. Y.  
Mr. Benoit, Electric Shop, Watertown, N. Y.  
Fred Ebert.

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W. G. Seeger, Seeger Refrigerator Co.  
J. J. Leonard, Seeger Refrigerator Co.  
Ted McGrath, Seeger Refrigerator Co.

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H. F. Hartman, Hartman Electric Const. Co.

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Arthur Connerly, Pentecost & Craft.

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Helen Manore, Manore Sales & Service.

**TROY, N. Y.**  
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R. H. Bachan, H. A. McRae & Co. Inc.  
R. G. Vosburgh, H. A. McRae & Co. Inc.  
J. B. Peer, H. A. McRae & Co. Inc.  
J. C. Bassell, H. A. McRae & Co. Inc.  
Wm. Campbell, H. A. McRae & Co. Inc.  
G. W. Morehouse, H. A. McRae & Co. Inc.  
Poughkeepsie, N. Y.  
Wm. C. Hunt, Salem, N. Y.  
Paul P. Quinn, Shaker, Travis & Quinn, Poughkeepsie, N. Y.  
Albert Page, Page Radio Shop, Inc.  
Harry Henry.

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D. G. Connally, Walter Connally & Co.  
Mrs. D. G. Connally, Walter Connally & Co.  
W. R. King, Walter Connally & Co.

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**VICKSBURG, MISS.**  
A. M. Feltus, Jr., Feltus Engineering Co.  
R. H. McNeely, Feltus Eng. Co.  
R. C. Feltus, Feltus Eng. Co.  
L. Boyd Evans, Evans Battery Co., Tupelo, Miss.  
C. Kenwright, 444 Tire & Battery Co., Grenada, Miss.

**WILLIAMSPORT, PA.**  
Mr. Lehman, Neyhart Hdw. Co.  
Dorsey Wenner, Economy Stores Co., Inc., Bloomsburg and Danville, Pa.

**YORK, PA.**  
H. E. Goodling, H. E. Goodling Electric Co.

**YOUNGSTOWN, OHIO**  
W. P. Williamson, Jr., Good Housekeeping Shop.  
C. E. Hicks, Good Housekeeping Shop.

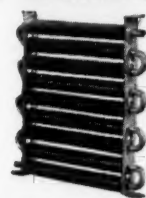
**ZANESVILLE, OHIO**  
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Mrs. Barron, Charles J. Barron Furn. Co.  
Edw. M. Barron, Charles J. Barron Furn. Co.

**Export**  
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W. D. Loomis  
P. A. Bloise, Rep. in Mexico and Cuba.  
D. B. Richardson, Rep. in S. America.  
D. Fabien, Montreal, Quebec, Canada.  
C. Fabien, Montreal, Quebec, Canada.  
Joe Green, Toronto, Ontario, Canada.  
G. L. Davey, Davey Hdw. Co., St. Thomas, Ontario, Canada.  
G. Gale, Davey Hdw. Co., St. Thomas, Ontario, Canada.  
J. H. Shillington, Blenheim, Ontario, Canada.  
Mr. McPherson, Blenheim, Ontario, Canada.  
A. B. Crawford, Crawford-Copeland Co., London, Ontario, Canada.  
Earl J. Black, W. W. Coffee & Co., Hamilton, Ontario, Canada.  
Carlos Follache, New York, Rep. for Gumer-sindio Garcia, Madrid, Spain.  
F. J. Crowley, F. J. Crowley & Co., Dundas, Ontario, Canada.  
Roy E. Pfaff, Guelph, Ontario, Canada.  
F. Rossiter, Crowell Bros., Ltd., Halifax, N. S.  
T. Colley, Guelph, Ontario, Canada.

**District Men**  
Messrs. Scott, Pizarro, Hill, Arnesen, Jones, Williams.

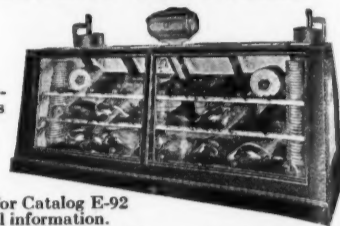
**Miscellaneous**  
C. E. Evans, Commercial Credit Companies, Chicago, Ill.  
W. Y. Rahn, Commercial Credit Companies, Chicago, Ill.  
Gordon Wootton, Seeger Refrigerator Co., New York, N. Y.  
Arrowhead Steel Products, A. J. Balingier, Minneapolis, Minn.  
J. H. Bracken, The Celotex Co., Chicago, Ill.  
C. L. Bailey, The Celotex Co., Detroit, Mich.  
M. S. Charlton, Campbell-Ewald Co., Detroit, Mich.  
A. W. Bailey, Campbell-Ewald Co., Detroit, Mich.  
R. V. Campbell, Campbell-Ewald Co., Detroit, Mich.  
H. H. Gardner, Highland Park Trust Co., Highland Park, Mich.  
Herbert I. Lord, Detroit, Mich.  
Harold W. Buckheit, Guardian Trust Co., Detroit, Mich.  
C. A. Shephardson, Guardian Detroit Bank, Detroit, Mich.  
George D. Bailey, Ernst & Ernst, Detroit, Mich.  
Frank H. Johnston, Day-Fan Electric Co., Dayton, O.  
Frank S. Gibson, Jr., Belding Hall, Belding, Mich.  
E. Jacobs, Belding Hall, Belding, Mich.  
D. W. Hamilton, Belding Hall, Belding, Mich.  
J. H. Neebe, Campbell-Ewald Co., Detroit, Mich.  
Elmer R. Bornman, Campbell-Ewald Co., Detroit, Mich.  
John W. Edelberry, W. R. Wilson, First National Bank Bldg., Detroit, Mich.  
John C. Matheus, H. M. Robins Co., Detroit, Mich.  
F. M. Cockrell, Electric Refrigeration News, Detroit, Mich.  
H. A. DeLashmott, Electric Refrigeration News, Detroit, Mich.  
Hugh J. Moore, Electric Refrigeration News, Detroit, Mich.

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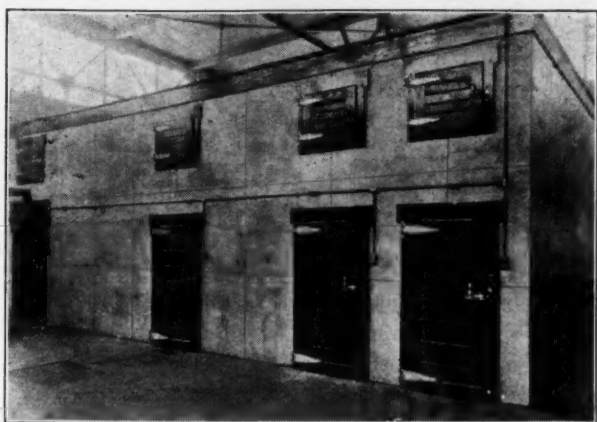
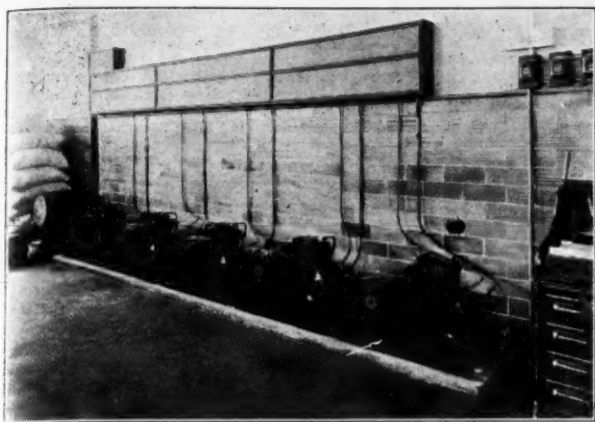
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Five model "C" Frigidaire 1 h. p. compressors operating twenty No. 88-F coils, were installed by the J. J. Pocock Co., Philadelphia, to refrigerate the huge restaurant box shown above, which is located in the cafeteria of the Baldwin Locomotive Works at Eddystone, Pa. This refrigerator is thirty-four feet long, twenty feet wide and stands twelve and one-half feet high and has a capacity of 8,000 cubic feet.

The box is constructed of pure cork board and concrete, the thickness of the cork board varying from four to six inches. Included in the refrigerator are compartments for the storing of meats, dairy products and vegetables. Different temperatures are maintained in these various compartments.

## ENVIRONMENT MORE VITAL THAN TIME IN KEEPING FOODS

Engineer Gives Principles of Refrigeration; Describes Operation of Mechanical Units

By S. Bennis, Power Engineer, United Electric Lt. & Pr. Co., New York

THE quality of food depends more upon the environment in which it is kept than upon the keeping time. It is more important after the food reaches the home that it be kept in a proper environment, than it is in its long journey from the producer's market. In this long journey from the producer's market, there are presently employed approximately 150,000 refrigerated cars which are rigidly supervised to maintain proper temperatures for this long journey. These refrigerators are iced most carefully and it is estimated that approximately ten tons go in each refrigerated car in its journey from the Pacific to the Atlantic. Having reached its destination, it is then taken to modern warehouses where it is again carefully supervised and maintained in proper temperatures. In fact, foods in cold storage are even better than those which may be purchased at retail in some cases, as only the best quality of foods are picked for cold storage warehouse purposes.

It is important to properly appreciate that refrigeration and health are intimately associated. Ice still enters the lives of the American people in a multitude of ways and it may be appreciated by the fact that approximately over 16,000,000 tons of ice are manufactured each year, which is equivalent to 1,000 pounds of ice for each person in the United States—man, woman and child.

The use of mechanical refrigeration is not confined to industry which has to do with the storage and preservation of foods, but is finding an ever-increasing application in manufacturing processes such as candy, drugs, chemicals, oil refining, automobile industry, lumber industry, photographic films and pictures. Another large growing field for mechanical refrigeration is to be found in

## FROZEN FRUIT IS NOVEL SALAD

Heat  $\frac{1}{4}$  cup orange juice and 2 tablespoons of lemon juice and add to 1 tablespoon of gelatin dissolved in  $\frac{1}{4}$  cup cold water.

Add 1 cup of ginger ale,  $\frac{1}{2}$  cup diced pineapple and peaches,  $\frac{1}{4}$  cup maraschino cherries, and 1 tablespoon diced preserved ginger, and 2 tablespoons of powdered sugar.

Pour into refrigerator tray and chill one hour, then cover with whipped cream dressing and chill for three hours.

To make whipped cream dressing, mix 1 cup cream whipped, 1 tablespoon lemon juice, 2 tablespoons powdered sugar,  $\frac{1}{2}$  teaspoon salt and vegetable coloring if desired.

the artificial cooling of theatres, department stores and auditoriums. Cooling of studios for the talking movies has brought new uses for refrigeration. All of these is but a step from the cooling of our homes. The coming year will find some of us cooling our homes in the summer just as we now heat them in the winter. In fact, the process may be combined under one control to provide a constant room temperature throughout the year. Eventually, we will become our own weather makers.

It is remarkable to see the growth of electric refrigeration for the household over the past years. During the last ten years, the growth of this business has increased about 300%, whereas the growth of population has increased only 17%. There are now being sold approximately 500,000 machines per year. It is anticipated that within the next few years the rate will be in the order of 1,000,000 machines per year.

When we consider that there are over 18,000,000 electrically wired homes in the United States and that new homes are being added at the rate of 1,000,000 per year and that the population of the United States is in the order of 120,000,000, there is still a large field for refrigeration, both ice and mechanical.

The uses of ice are rapidly growing and the good work of the mechanical refrigerator manufacturers has done

much to stimulate the thought of refrigeration in the household, with the result that ice has been used to considerable extent and the public has realized more and more the importance of proper insulation. Therefore, refrigeration, regardless of the means by which it is secured, may be defined as the process of the removal of heat.

If heat is removed from a body or space, that body or space becomes cooled. Therefore, cold may be defined as the absence of heat. Cold is the result obtained after the removal of heat. When a piece of ice is put into a refrigerator, it is not cold that we are putting in but a means for removing heat. The melting of ice is a process by which heat is absorbed and carried away in melted ice or water.

In the mechanical refrigerator, the heat is actually pumped out of the refrigerator and in both cases, heat is taken away and the result is cold.

When ice melts, it absorbs heat and each pound of ice changing from a solid to a liquid absorbs as much heat as is required to raise the temperature of a pint of water to 144°. Thus the problem of refrigeration is the problem of how to remove heat.

Realizing that heat flows from the object of higher temperature to one of lower temperature in the same way that water flows from a higher to a lower level, the ice, when melting, changes its physical state from a solid to a liquid, absorbing heat from the surrounding air within the box. The physical laws which govern refrigeration are that when any solid changes to a liquid or when a liquid changes to a gas that this change or process is accompanied with the absorption of a definite amount of heat and reversely, if the gas is changed to a liquid or the liquid to a solid, the process is accompanied with the elimination of a definite amount of heat. Therefore, mechanical refrigeration is based on these fundamental physical laws and if substances are used in the liquid form which have the property of changing to a gas at temperatures lower than the air or food in the refrigerator so that heat may flow from the air or food in the refrigerator to these liquid refrigerants; thus the heat supplied to these refrigerants causes them to boil or evaporate rapidly, absorbing heat and resulting in the sensation of cold.

This is somewhat the same as if we should place alcohol or ether on the skin, the rapid evaporation or absorption of heat from the skin produces the sensation of cold. Therefore, such liquids as will boil at, or vaporize at lower temperatures are used.

Ethyl Chloride = 55° F at atmospheric pressure.  
Sulphur Dioxide = 14° F at atmospheric pressure.

Methyl Chloride = 11° F at atmospheric pressure.

The heat necessary to make the liquid boil is abstracted from the heat medium which is the air or the food. This acting to the liquid in the evaporator in the same way as the heat of a fire would act to a steam boiler.

If refrigerants were cheap and readily handled, it would be possible to insert in a suitable container just the refrigerants, allowing them to vaporize and the vapor discharged into the atmosphere. Thus the vapor would contain the heat abstracted from within the box and removed to a place where it would do no harm. However, since this cannot be done, it is necessary to use the refrigerants over and over and collect the vapor in a suitable arrangement, depriving it of its heat and bring it back again to its liquid form to be supplied again to the evaporator or chamber where the liquid may again boil off and absorb heat. Thus the simple combination in a vessel which is the refrigerant, absorbing heat from the surrounding air, boiling off in a vapor, that vapor being pumped off in the evaporator by means of a suitable pump and this temperature raised so that in the discharge into the condenser, heat will again flow from this hot gas into the cooling medium and under the action of pressure and cooling, the gases will be deprived of their heat and thus return again to liquid form—this will collect in a suitable receiver and then through a regulating valve and

allowed to flow into the evaporator over the same cycle.

In order to regulate the temperature within the box or the amount of refrigerant evaporated, a control is arranged to stop and start the motor when a proper temperature has been reached. Therefore, the four parts of the mechanical refrigerator may be indicated as follows:

- (a) Evaporator or chilling unit.
- (b) Compressor and condenser.
- (c) Expansion valve or liquid float control valve.
- (d) Temperature control.

The function of each of the above main parts may be described as follows:

### (a) Evaporator or Chilling Unit

The liquid refrigerant being fed into the evaporator or chilling unit either thru the expansion valve or liquid control valve, will evaporate absorbing heat from the surrounding air, thus cooling the storage space.

### (b) Compressor and Condenser

The process of condensing is the process of removing the heat contained in the refrigerant gas and it is removal of that heat which has been absorbed during the process of expansion or evaporating from a liquid or a gas. This expanded gas, which now contains the heat of vaporization, may be compressed into a smaller volume with the raising of its temperature. This is accomplished by a compressor which consists of a reciprocating pump having suitable intake and discharge valves. The compressed gas discharged at a higher temperature than the surrounding air, heat will flow from this gas into the cooling medium with the result that gas returns to a liquid form, the liquid now being ready again to proceed through the same cycle, vaporizing and condensing.

### (c) Expansion Valve or Liquid Control Valve

The function of the expansion valve or control valve is primarily to allow the refrigerant to pass into the chilling unit at rates dependent upon the refrigeration effect desired.

### (d) Temperature Control

Temperature control is to stop and start the motor driving the compressor in response to changes in temperature in the evaporator or in the refrigerator itself. The accepted temperature range for refrigeration is within the limits of 40° to 50° F.

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Through fire and water, this Kelvinator equipped restaurant refrigerator at Elmira, New York, continued to operate and maintain a temperature. "Although considerable water came into contact with the compressor," writes the Elmira Water, Light and Railway Co., "it continued to operate and showed no apparent damage."

The above picture was taken after a recent fire in the Belmont Restaurant at Elmira, New York. The insert shows the walk-in type refrigerator box which is equipped with a Kelvinator Model "N" Compressor and No. 4886 Cross Fin Coils.